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Journal of Horticulture.

THURSDAY, JANUARY 7, 1904.

A New Year's Message.



It is now a good many years since my friend, Dr. Robert Hogg (whose death left a perceptible blank in one's life), asked me to send a New Year's message to the readers of what used affectionately to be called "Our Journal." This message I repeated from year to year, never expecting that I should do so for so long; and now comes a request to me in my eighty-sixth year that I should again send a kindly greeting to those known and unknown friends who, I believe, will gladly receive the good wishes of one who has grown old in the service of horticulture, and who can truly say that some of the pleasantest hours of a long life have been spent in that service. I have had, as many know, severe illnesses, and I am thankful to Almighty God that these have not affected my brain power, and that my memory is as good as ever it was, and that I am able to fulfil some of the duties of my sacred calling, and also to indulge, though not as I used, in the enjoyments which my garden has afforded me. Of late years, however, the blindness which some years ago seized me has gradually increased, and I am now to all intents and purposes quite blind. I should, nevertheless, have been unwilling to put on one side the request made to me, and I respond to the call the more willingly because the year 1903 will, I think, long be remembered in the history of our craft.

As far as the year itself is concerned, it has been one of the most disastrous that I can recollect. Kent has well been called the "Garden of England," and anyone who went through it in the early days of May would readily have said it well deserves the title. There is no county in England where the Cherry flourishes in like profusion, and everyone was anticipating a bonntiful Cherry

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

harvest; but alas! on May 14 occurred one of those sad frosts which ruined the hopes of the fruit grower. Why was it so disastrous? I have known frosts when the thermometer fell lower, and yet did not do so much damage. Whatever the cause, the result was disastrous in the extreme. In one of our most famous localities, the neighbourhood of Sittingbourne and Faversham, there were only two Cherries to be counted in one orchard. In the same manner in our gardens everything was uncanny. Herbaceous plants, moreover, did not thrive, and Lilies and bulbous roots, with the exception of a few very hardy ones, were unable to hold their own.

The bad character of the season has so impressed itself on my mind that, contrary to my usual custom, I have dwelt upon it instead of rushing at once into what I may call the horticultural history of the year. Turning to it, we have here a much happier picture presented to us. There were two subjects which were much before the mind of metropolitan horticulturists, and opinions were divided as to which of these was the more important, and which should be taken up first. A more commodious meeting place was wanted for the fortnightly meetings of the Royal Horticultural Society than in the dingy hall in James' Street, and then there was the more important subject of the substitution of some garden for Chiswick. There are many friends of the Society who hold an almost superstitious reverence for the old gardens of Turnham Green; but it was evident that they would be no longer available for carrying on the experimental side which had been so ably conducted by Mr. Barron for so many years. Baron Schröder had very warmly espoused the cause of the hall, and had given a munificent donation towards obtaining it. His Majesty the King and His Royal Highness the Prince of Wales had both become subscribers to it; but as usual when anything is started in this country people consider they are best fulfilling their rôle by picking holes in every plan suggested.

Matters were in this position when all at once the Society was startled by the announcement by Sir Thomas Hanbury (whose garden at Mortola in the Riviera had long been the admiration of the visitors to that favoured region) that he had purchased the garden of the late distinguished horticulturist, Mr. G. F. Wilson, of Wisley, near Weybridge, and had presented it to the Society. It is about sixty acres in extent, and thus the Society is free from any difficulty on that ground, and though not direct on the railway, there is very little doubt that in these days of light railways and trams this defect will soon be remedied. Of course, a good deal of expenditure will be necessary for putting up suitable buildings such as gardeners' houses and the other accessories of a great horticulturist establishment, and which will involve considerable anxieties on the officials of the Society; but when we consider what has been done under the guidance of Sir Trevor Lawrence, the president, and the Rev. W. Wilks, the indefatigable secretary, we feel confident that all difficulties will be ultimately surmounted.

Another great change has taken place, the demolition of what used to be called the Royal Aquarium, and purchase of the site by the great Wesleyan body has removed the place of exhibition, which from its central position ought to have commanded success. It was here that the exhibition of the National Chrysanthemum Society and other special societies were held, and its loss has been keenly felt, although, no doubt, the breach will be in some way repaired. The Royal Botanic Society does not seem to be able to get out of the unhorticultural line that it has adopted, and its exhibitions in a horticultural point of view find little favour. Of the provincial exhibitions Shrewsbury seems to hold a prominent place, and although its exhibitions are a great mixture yet some of the finest exhibits of the year were to be found on the show ground of the Quarry, while the large quantity of gate money obtained has greatly helped the various charitable institutions of the quaint old town. On the whole I think that the prospects of horticulture generally are very bright. The transference of the shows of the National Rose Society from the Crystal Palace to the Temple Gardens has greatly helped forward the cause of the Society, for it has led to a large increase of members which now number more than a thousand, and it is proposed to raise a reserve fund so that in case of bad weather the Society shall not be crippled.

The new hall of the Royal Horticultural Society will be opened, it is hoped, in the autumn by an exhibition of Roses. There are many who are anxiously calling out for such an exhibition, and it will then be seen what Rose growers will be able to do. I think it ought to be distinctly understood that Roses shown ought not to be grown under glass. What we want to see is whether our gardens will be much enriched by any of the new introductions which our hybridisers bring under our notice. I think that there is one source of supply which promises well, namely, the single Tea Roses which have been introduced by Messrs. Alexander Dickson and Sons, Newtownards (and to which additions have been made this year), for these have a two-fold claim on us; they are sweet scented, and they bloom continuously—not like the single ones which we have now, which are essentially summer Roses. The surface of our globe seems very well ransacked for new productions. The opening out of Northern China and Thibet may probably introduce something fresh to our gardens. The low temperature prevailing in those regions will probably furnish hardy plants, and to the great majority of horticulturists these will be the more acceptable.

During the year the usual large number of certificates have been granted by the Royal Horticultural Society, but most of the plants thus decorated have but an ephemeral existence, such as Dahlias, Chrysanthemums, Carnations, &c., which another season will be superseded by others in the same class, and who recollects those which ten years ago came to the front? Indeed, several of them are treated almost as annuals and as carefully. Hybridised seed can now be readily obtained; growers prefer treating them in this manner to troubling themselves with named collections. The elaborate care, for instance, with which some of them were exhibited deceived those who were not in the secret of the exhibitors' art. Seeing, for instance, the beautifully arranged though thoroughly artificial Carnations and Picotees which came from our principal growers, it was thought that any ordinary exhibitor might follow in their footsteps, but they soon found out their mistake and discovered the beauty of the exhibit was not only due to the grower but also to the "dresser."

I remember once asking a celebrated exhibitor of the incurved Chrysanthemum how long it took him to prepare his flower. He said he generally gave them half an hour each. What wonder, then, that the advent of the irregular, fantastic, but beautiful Japanese varieties was hailed with satisfaction? Of late years I am afraid there is a tendency especially among Northern growers, to treat our much-loved Rose in the same manner, and it is to be hoped that the judges at our Rose exhibitions—especially among the National—will be on the look out to discountenance such malpractices and let the flower be shown in its natural condition. The N.R.S. has discountenanced overdressing, but this does not seem to have done away with the practice, indeed, some growers say it is impossible to do without it. An important resolution has been adopted by the N.R.S. at the suggestion of the Rev. J. H. Pemberton, that the metropolitan show shall never be held earlier than July 6; the differences of climate and situation effectually excluding some who live in some of our more backward districts from coming forward at an earlier date.

I now come to what has always been the most painful part of my annual review, the roll call. The names on it have not been so numerous as in some seasons, and few of them are much known in the metropolis; but horticulturists received one serious blow in the death of Mr. Archibald F. Barron, more especially in his work of arranging the fortnightly shows in the Drill Hall, than which a more unsuitable place for a flower show it would be difficult to conceive. Then again amongst amateurs the loss of that kindly, genial, and thoroughly straightforward friend, Mr. John D. Pawle, has been keenly felt. In his earlier days he was a keen exhibitor of Roses, and carried off many prizes at Reigate and other provincial shows. Another good grower, and one who has greatly advanced horticulture in Ireland, was Mr. John Bain, for many years the esteemed curator in the Trinity College Gardens at Pembroke Road, Dublin, who has during the past year closed an honoured life of usefulness and good works in those gardens which Mr. W. F. Burbidge has invested with so much interest. It is a far cry from London to Cardiff. The death of Mr. Andrew Pettigrew has removed from us

one who endeavoured to carry out the culture of the Grape Vine on the walls of that historic castle and the neighbouring vineyard, and manufactured some very fair wine from the Grapes grown there. How is it that we find in the various parts of the south and south-eastern counties places called "The Vines," although no attempt to cultivate the Grape is made there now? Surely the climate must have altered considerably since then? Another gentleman who contributed very much to the cause of horticulture is Mr. William Thompson, of Ipswich, a large importer of seeds and grower of the plants raised from them. It was difficult, of course, to keep them perfectly distinct, yet one never heard of persons finding fault and of the wrong seeds being supplied to them. There was also James Smith, of Mentmore, a giant amongst British gardeners, and one of the most lovable of men.

The garden literature of the past year has been copious enough. The days of illustrated periodicals have passed by, and the four principal journals supply the wants of all gardeners. "The Gardeners' Chronicle" takes the scientific side of horticulture. The *Journal of Horticulture* is essentially the paper for gardeners and gardening. "The Gardeners' Magazine" appeals to the practical gardener, while "The Garden" brings before its readers anything connected with that branch of horticulture which its originator tended to make so popular, the herbaceous and alpine border.

Speaking of myself, I cannot now personally do so much as I used, but I am thankful to say that in my eighty-sixth year I can keep in touch with many of those who have been my fellow labourers in times past. And now once more, my friends, farewell. I have to thank many of you for your kindly sympathy in my severe trials, for to have lost one's sight and powers of walking are great trials; yet our Heavenly Father has enabled me to bear them with patience and submission to His will, and I can look forward with hopefulness to the end which must soon come. May God give you all grace while engaged in a pursuit which must continually remind you of Him, and that you, too, may be able to reply to the "I come quickly," "Even so come, Lord Jesus."—D., Deal.

The Season of Hopefulness.

With the beginning of another year, Hope will be the guiding star which will lead millions onward to future achievements. Nothing of much importance can be accomplished in the world by an individual who lacks a fair share of hopefulness as well as energy. From the very nature of a gardener's calling those who follow it must imbibe and develop a spirit of hopefulness, and in truth gardeners as a body are no pessimists.

Storms may have raged in the past, deluge followed deluge week after week; the failures of the year may have been many, but rising superior to all the true gardener starts the new year with a firm determination to make a great fight and win from Nature, by hook or by crook, improved results in many directions. 'Tis indeed fortunate for Britain that this keen spirit of hopefulness is abroad among so sturdy a section of her sons who, during the last century have done so much to spread knowledge concerning methods of high culture throughout the land. The numerous well-managed private gardens which form a network throughout Britain have in the past been splendid training schools from which apt pupils have worked their way to responsible positions in many parts of the world, where they have given an excellent account of themselves, and stand as monuments to the wisdom of their early training.

The gardens and gardeners of Britain have, however, been instrumental in doing much more than this. For years they were the chief causes which helped to raise the standard of cottage gardening all over the country. The labourers in large gardens put into practice on their own plots the lessons learned at their daily work. These methods were copied by others, and thus good gardening gradually permeated the land. The early market gardeners

also learned the majority of their rules concerning crops grown under glass or in the open air, from the private gardener, who was really the pioneer of all methods of intensive culture, and yet to-day, judging by the trumpet blasts of some of the market men, and the writers in periodicals devoted to their interests, the uninitiated might be tempted to believe that the alpha and omega of all that is, or ever was, good in gardening, must have emanated from the swelled cranium of a sage whose weekly vapourings are enshrouded in a greenish or bluish coat. No, the private gardeners of Britain have played a mighty part in the development of Horticulture, and their record will not be effaced by mere clap-trap assertion.

The future, however, undoubtedly holds out great prospects of a wide development of various forms of gardening, and those who are looking ahead are already taking steps to grapple with difficulties which may arise, or have been before us. In this connection the steps that have been taken to establish a National Potato Society will prove of immense importance and interest to gardeners of all descriptions, and, indeed, the whole nation.

The rising generation of gardeners have splendid opportunities of gaining a sound knowledge in the various scientific principles which underlie their calling, and it is absolutely necessary for them to grasp such opportunities in order to rise to a high position in their profession. There is still plenty of room on the top, and the brightest hopes for the future lie in the association of "practice with science," backed up by untiring energy.—ONWARD.

Gadding and Gathering.

A Tomato Society.

One can hardly suggest the formation of a Tomato Society, but could it not be made a branch of the new National Potato Society, which, we believe, will eventually be exceedingly strong and do most excellent work? Three years ago we imported 793,991cwt of this fruit, valued at £734,051. Both the weight and the value have increased annually since. The demand being thus established, home growers have awakened to possibilities, and there are more home-grown Tomatoes in the market to-day than ever there were before. Of course prices have sunk, and growers were selling tons of Tomatoes in July and August this year at Manchester for 2d. per pound. The late D. T. Fish declared in his lectures that Tomatoes could be profitably grown at 2d. per pound; but that is only so when huge quantities are turned out at the least possible expense. In the Isle of Wight Mr. E. C. Goble sometimes finds his supply to be greater than the demand, unless at unremunerative prices.

Ware's Nursery at Feltham.

Since the reorganisation of the directorate of Messrs. T. S. Ware, Limited, in 1902, considerable alterations have been effected. There are now some seventy nursery hands employed, and their presence furnishes animation in the grounds, which have been arranged anew, and large breadths of fresh young stock have been planted. Paths and roadways are completed; the pot Rose department has been greatly developed, while hardy plants, as of yore, form a leading feature of the firm's business. Seeds and bulbs in their season engage the energies of special staffs of the employes. And to this one is very pleased to be able to add that a shop was recently opened for transactions in London, the address being at 25, York Road, near the Waterloo Station.

My visit was made while the Hollyhocks and Dahlias were at their best. The Meadow Saffrons, too, showed their bluish and rose-mauve Crocus-like flowers in quite a dozen frames near the offices, so that following upon the recent notes in these pages as to the desirability of having more of the Colchicums about, this points to where they may be got. *C. speciosus* stood half a foot high, and with its orange-red stamens within the lavender perianth, was a gem unrivalled amongst autumn-flowering dwarf plants. *C. zonatus* is rosy-mauve. Then we have the Zephyr Flower or Swamp Lily, called *Zephyranthes candida*, which is used as an edging plant to narrow borders in gardens here and there, for its rush-like foliage (which only grows 5in or 6in long however) makes a fairly suitable verge. The flowers are pure white, rising above the dark leaves. Though I did not see *Sternbergia lutea* (the Winter Daffodil) yet as it blossoms along with the Colchicums and *Zephyranthes*,

it furnishes a third very charming flower of the amaryllidaceous type.

Edging a part of the great central flower border here was the double-flowered *Arabis albida*, and this gem of hardy plants flourishes on light as well as heavy ground. At its best it has been taken for a small Stock. The collection of bearded Irises is representative of the best, and a few stragglers were flowering even in September. Gladioli were in exceedingly strong force, and from conversation I gathered that so many as forty-seven dozen spikes (564) had been cut in one night for the market. Delphiniums and Hollyhocks were splendid, and of the latter there were large breadths of ground filled with thriving, sturdy, fresh and clean young plants, with foliage resembling that of small Vegetable Marrows!

It is specially noteworthy that in their selection of varieties of any well-known and popular class of border plants, like those already named, or others such as Phloxes, Michaelmas Daisies, Dahlias, and Chrysanthemums, the keenest weeding-out is done, so that only the best are retained. Therefore if a choice of sorts is left to the firm, it is more than likely that the fullest satisfaction will be assured.

The nursery runs to sixty-seven acres. A part of this area had been much infested with Couch-grass, but by careful cultivation with a "digging-plough," and afterwards sowing Tares as a crop, the fore-named weed has been overcome, and the same land is now devoted to bulb culture, or is carrying Savoy Cabbages. Four acres that were under Tares in September will be laid down in Asparagus in a week or two.

Manetti and Briar stocks to the number of 60,000 had been budded with Roses of the leading sorts; while the indoor Rose department was exceedingly well stocked with both the favourite and the newest kinds. This department is under the management of an experienced rosarian lately with Wm. Paul and Son, who, with his assistants, was busily potting rooted Manetti cuttings into 3in pots for winter Rose grafting. Of newer varieties seen doing well in pots, there were Prince de Bulgaria, Sunrise, Eugene Lamesch, Lady Battersea, Liberty, England's Glory (a rosy-pink single from Gloire de Dijon), and Madame Viger. The latter is a beautiful flower, of the colour of a Malmaison Carnation, and very free. The Banksia Rose makes a good pot subject. Conrad Meyer (La France x delicatissima) was spoken highly of for pot purposes. It is vigorous and throws a large pink blossom. Niphetos and Maréchal Niel were particularly strong; while 150 plants of Crimson Rambler made a goodly show. The shoots of the most vigorous extended to 13ft or 14ft. Lastly I would name Dorothy Perkins, the Wichuriana cross, of which there was here a fine complement indeed. There are 45,000 Roses in the open, and 12,000 in pots.

In a brief review (which is all we can attempt in the meantime) one cannot include a title of the interesting and beautiful garden plants that were seen on all hands. Reverting to the open nursery, the mind recalls the double Chestnuts worked on the ordinary common seedling Chestnut—and the same with the Hollies; the ornamental kinds, slow of increase, being budded in the usual manner on the common Ilex or Holly. Double flowered Cherries (*Cerasus*) are put upon the seedling Cherry, and so on with the other trees and shrubs which we plant at this season, and which adorn the policies of private demesnes.

Paeonies, Pentstemons, Potentillas—all are largely grown; and I saw 50,000 young Pyrethrums. Violas and Pansies also form chief features. The many kinds of pot Clematises cultivated in frames might well receive a notice apart, and the extent of them will be gathered from the fact that 20,000 are "worked" during the winter. Ampelopsis for walls are much sought after, and here they are in abundance. Of the hardy fruit trees I can say nothing here other than that they are liberally cultivated.

The hardy herbaceous and alpine plants have hitherto been perhaps the strongest side of Messrs. Ware's establishment, and they certainly do not mean that it shall be usurped. The handsome if somewhat fickle *Senecio pulcher*, with purple, and *Stokesia cyanea*, with blue flowers, both enjoying a warm, dry soil, were here in evidence. So too, was the new *Sidalcea candida* Rosy Gem, a pink form of the species, and a fine batch of *Iris stylosa alba* (under glass), this being a most valuable plant. The same remark applies to the very showy *Sparaxis pulcherrima pendula*, which is not often seen in good condition. *Iris Milesi* has lavender flowers, about half the size of the German Iris. *Lilium aurantium* Tashoiri grows 2½ft high, otherwise it is like *L. auratum*. Water Lilies and the graceful Bamboos (*Phyllostachys*, &c.) are well represented.—WANDERING WILLIE.

Forcing Plants.

Well prepared plants of Lilacs, Azaleas, Prunus, Deutzias, *Daphne indica*, Spiræas, Arum Lilies, Tea Roses, also bulbs, including Hyacinths, Tulips, and Narcissi, should be brought on steadily in a warm greenhouse. Later on some of them will require an increased temperature to develop the flowers.



Odontoglossum × *Vuytstekei* vivicans.

This beautiful hybrid was shown by Baron Sir Henry Schröder (gardener, Mr. H. Ballantyne) at the meeting of the Royal Horticultural Society on December 15, 1903, when a first-class certificate was accorded. The illustration which we furnish from a drawing by Mr. Geo. Shayer, shows the size and characters of an individual blossom. The sepals and petals are canary yellow, blotched with purplish-red, and the crimped or fringed edge of the lip is white, the centre being brown.

The Hybridising of *Cypripediums*: A Query.

I should esteem it a favour if, in an early issue of your valuable paper, you would briefly explain the process of fertilising *Cypripediums*. There is no expert in the near neighbourhood to whom I can refer. I think I have read that it is extremely simple; probably this is the cause of my failing to see it. Cattleyas, *Odontoglossums*, &c., I understand.—E. VINER.

Odontoglossum *Pescatorei*.

This is a beautiful free-flowering species, which resembles to a great extent the noted *O. crispum*, from which, however, it is readily distinguished by its larger orbicular lip and its oval-shaped sepals and petals. Like *O. crispum*, it varies greatly in different varieties in the amount of spotting on its flowers, some forms being pure white, with the exception of the golden-yellow crest on the lip, whilst, for example, in Veitch's variety, the segments of the flowers were profusely spotted. It was first discovered (says the "Gardening World") in 1847 in the Oak forests that occur on the higher declivities of the Eastern Cordillera of New Granada. Its pseudo-bulbs give rise to two ligulate pointed leaves 8in to 12in long, and to an arching slender scape 18in to 24in long, usually racemose, and many-flowered. The individual flowers are 2in to 3in in diameter, the petals being broader than the sepals, and possessing an undulate margin, the lip being fiddle-shaped and emarginate. From a gardening or decorative point of view, it is one of the most desirable species in cultivation.

Cultural Notes: Genera, and Suitable Temperatures.

During the year now opening I shall doubtless have occasion to refer frequently to the various compartments in which orchids needing various temperatures are grown, and it may not be out of place just now to give a short list of some of the most popular kinds under each heading and the present temperature required. First we have the East Indian house, the minimum temperature of which will be about 60deg, a few degrees less on the coldest night being preferable to forcing the fires hard. The day temperature may be 5deg to 7deg higher, according as the day is dull or bright, and a still further advance by sun heat is always beneficial.

In this house will be grouped the majority of the *Aërides*, such as *A. crispum*, *A. Fieldingi*, *A. nobile*, *A. odoratum*, *A. quinquevulnerum*, *A. virens*, and others, *Angraecum eburneum*, *A. sesquipedale*, and the majority of the smaller growing section, of which *A. citratum*, *A. modestum*, and *A. Ellisi* are members; *Ansellia africana*, many of the Eastern section of *Cypripediums*, such as *C. concolor*, *C. javanicum*, *C. Stonei*, *C. bellatulum*, and many of the hybrids. *Dendrobiums* and *Dendrochilums*, during their growing season, *Phalænopses* and *Saccolabiums*, *Sarcanthuses* and *Vandas* will all find a suitable home here; also *Stanhopeas*, *Calanthes*, *Phaius*, and other less known genera.

The second division will contain the majority of the Brazilian and Colombian Cattleyas and *Lælias*, and is known as the Cattleya house. The temperature should be 5deg lower than that of the East Indian house, and here Brassias, many of the West Indian *Oncidium*s, *Bulbophyllum*s, *Cyrtopodium*s, *Cymbidium*s, *Epidendrum*s, *Sobralias*, *Miltonias*, and the majority of *Cœlogynes* will thrive.

The cool house is the stronghold of *Odontoglossum*s, *Masdevallias*, *Maxillarias*, *Lycastes*; many of the *Oncidium*s and cool *Epidendrum*s, *Sophranitis*, *Disas*; *Pleione*s, and *Pleurothalluses*. During winter the night temperature for this compartment may range from 48deg to 52deg, rising to 60deg by day, while in ordinary summers it is impossible to keep it too cool from May onwards. There are, it is true, many plants that are better in houses coming between these temperatures and treated rather differently as regards atmospheric moisture, and these will be noted in due course; but for all practical purposes and with proper grouping of the species the three houses are sufficient for ordinary collections.—H. R. R.

Exotic Conifers in Britain.*

Although Great Britain has only a small percentage of forest land, she is able to show a great variety of extra-European species of trees, many specimens of which have attained to a size that is probably not equalled elsewhere in Europe. It must be said, however, that much more attention has been given to the introduction of conifers than of dicotyledons, a result doubtless due to the fact that the humid climate of Britain is pre-eminently adapted to the requirements of the former class of trees. There seem to be, speaking generally, three outstanding features in the exotic coniferous trees of Great Britain:—(1) Their age; in a large number of cases we possess the oldest specimens in Europe. (2) Their size; the rate of growth being usually very satisfactory. (3) Their abundance; the number of places where important collections of well-matured conifers are to be found being counted by hundreds.

Of the species of trees now growing in Britain only a few are known to have been present in pre-glacial, inter-glacial, and post-glacial times. With regard to some of these it may be said that although they are present in Britain to-day, and were undoubtedly present in pre-Roman times, it is possible that they became extinct in prehistoric times to be afterwards introduced by the Romans, or in the period subsequent to the Norman Conquest. This is certainly true of *Picea excelsa*, *Rhamnus frangula*, *Pyrus torminalis*, *Pyrus Aria*, and *Carpinus Betulus*, whose remains have been found in pre-glacial deposits, but not in the peat bogs or other deposits of post-glacial times.

The Spruce is believed to have been re-introduced by man in the sixteenth century. Perhaps it is fair to assume that trees met with in the peat bogs and fluviatile and lacustrine deposits of post-glacial times have persisted right through the centuries that separate the Neolithic period from the present day, and that such species are therefore, in the strict sense of the term, indigenous to Britain. The following is the list (omitting mere shrubs such as *Prunus spinosa*, *Viburnum Opulus*, *Sambucus nigra*, *Cornus sanguinea*, *Salix cinerea*, &c.):—*Ilex Aquifolium*, *Acer campestre*, *Prunus domestica*, *Prunus Avium*, *Prunus Padus*, *Pyrus Aucuparia*, *Pyrus communis*, *Cratægus oxyacantha*, *Fraxinus excelsior*, *Ulmus montana*, *Betula alba*, *Alnus glutinosa*, *Corylus Avellana*, *Quercus sessiliflora*, *Quercus pedunculata*, *Fagus sylvatica*, *Salix caprea*, *Populus tremula*, *Taxus baccata*, and *Pinus sylvestris*.†

A few are believed to have been introduced by the Romans, e.g., *Juglans regia*, *Castanea vesca*, *Acer Pseudoplatanus*, *Tilia europæa*; while others found their way to Britain in the sixteenth or seventeenth centuries, e.g., *Æsculus Hippocastanum*, *Populus alba*, *Picea excelsa*, *Abies pectinata*, *Larix europæa*. Although the last-named was introduced about the middle of the seventeenth century, it was not till the second quarter of the eighteenth century that its cultivation, especially in Scotland, was undertaken on a large scale.

The introductions of the nineteenth century are much the most numerous and interesting, and it is chiefly these that occur to our mind when we speak of the acclimatisation of exotics. Before, however, reviewing these recent introductions, it may be well to look for a little at the climate of Britain, the peculiar character of which has proved so favourable to tree-growth.

The climate of Britain is characterised by the comparative mildness of the winters and the coolness of the summers. If these two factors varied to a like extent, the mean temperature of London would be the same as that of other places in the same latitude, say, Warsaw; but, instead of this, we find the mean temperature of London to be the same (about 49.5deg F.) as that of Vienna, which is situated over 3deg of latitude further south. The contrast with Munich is even more striking, the mean annual temperature of this city being about 4deg F. below that of London. This means that the mildness of the English winter is relatively more pronounced than the coolness of the English summer. In January the mean temperature of much of Ireland and of the west of Scotland and England is the same as that of Avignon, Florence, and Constantinople; whereas in July London is not so warm as Memel, which lies more than 5deg further north. In winter the greater part of Britain is 10deg or 12deg warmer than Munich or Vienna, whereas in July the temperature of Vienna is nearly 7deg F. above that of London.

While the rate of tree-growth may be much affected by summer temperature, what determines the question as to whether a particular species may be successfully grown in a place is not so much the mean summer or mean winter temperatures as the minimum winter temperature. On the west coast of Scotland and England, and over the greater part of Ireland, it is a comparatively rare event for the temperature

to sink below 20deg F., while any snow that may fall lies for, at most, but a few days. In the centre and east of England and Scotland two or three weeks of frost may be experienced each winter, when the thermometer may sink to 15deg F., and occasionally, though very rarely, to below zero. The figures for certain stations for the five years 1893-1897 are shown in Table I., which has been kindly compiled for the purpose of this paper by the Meteorological Office. [Omitted from this reprint.]

It is in winters of unusual severity that the climate of Britain contrasts most favourably with that of the rest of Europe. February, 1895, was an exceptionally cold month over the whole of Europe, but the mean minimum temperature (24deg F.) of that month in London was no lower than that experienced along the west coast of France and in the Riviera, Central Italy, and Turkey. In the same month the mean minimum temperature was 18.5deg F. in Vienna, and 16.5deg F. in Munich, while the absolute minimum temperature recorded was 11deg F. in London, 4.5deg F. in Vienna, and -4deg F. in Munich. Other data are shown in Table II. [here omitted], the figures being given to the nearest half-degree.

In the month of May, Britain and Austria have each about 200 hours of sunshine, whereas in December the amount of sunshine in Austria (50-100 hours) is about double that in Britain. On the mean of the year Britain gets from 27 to 36 per cent. of its possible sunshine (1,200-1,600 hours), whereas Austria gets 40 to 50 per cent. (1,800-2,000 hours).

In January seven-tenths of the sky in Great Britain is obscured by cloud, whereas in Austria six-tenths only is covered by cloud. In July the sky is clouded to the extent of six-tenths in the south of England, and eight-tenths in the north of Scotland, as contrasted with only four-tenths in Austria.

As regards annual rainfall it may be said that the east of Britain receives 20in to 30in, whereas twice this amount falls



Odontoglossum × *Vuylstekei vivicans*.

in the west, some small areas receiving more than 150in. The larger part of Germany and Austria receives annually about 30in of rain, 40in falling in the Hartz and Carpathians, and 60in in some parts of the Tyrol.

(To be continued.)

Water Bouquets.

It is rather strange that fashion is not more pronounced in claiming the aid of these very pretty forms of room or table decoration. The water, combined with the glass, magnify the enclosed flowers, and give them a very pleasing, if exaggerated, appearance. They can be easily made, and the wherewithal is always at hand. Ordinary deep plates and finger glasses are all that are required. The flowers will also stand from four days to a week immersed in the water. At this season Holly and other berried plants arranged in this way give a very charming effect in rooms, or on tables, or wherever placed. The flowers must be tied to a piece of lead to keep them balanced at the bottom, and the plates can be covered with *Lycopodium* or any kind of graceful moss.—D. C.

* Translation of a paper contributed by Dr. Somerville to the Congress of Forestry Experimental Stations, Vienna, September, 1903. Reprinted from the Journal of the Board of Agriculture.

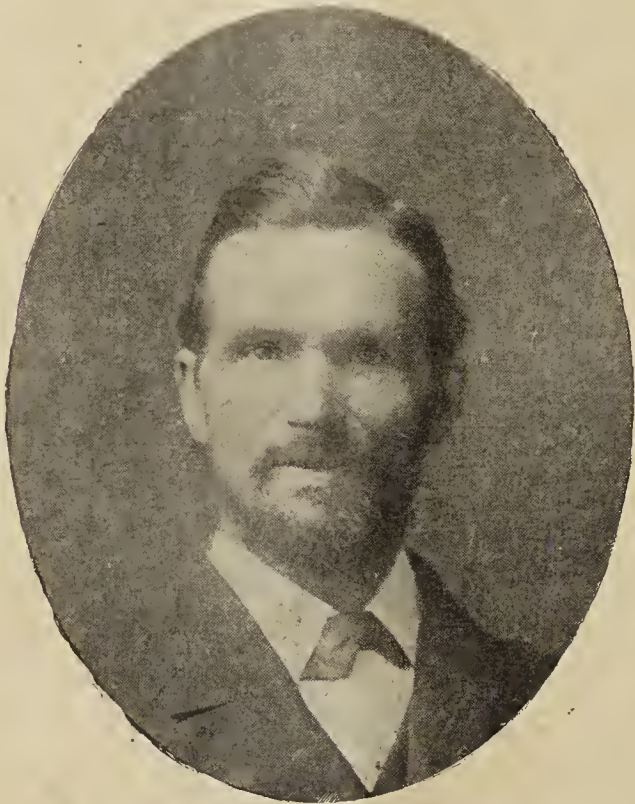
† Clement Reid. "The Origin of the British Flora."

County Council Instructors.

Devonshire.

Mr. Charles Berry, staff instructor in horticulture to Devon County Council Education Committee, comes of an East Suffolk agricultural family, who lived many years at Debenham, on the River Deben, the circuitous course of which ends in the German Ocean, two miles north-east of Felixstowe. Along its banks lies some of the best soil in mid-Suffolk, and over which a light railway is being built, with a station at Debenham.

Mr. Berry's school days were spent at Sir Robert Hitcham's Endowed School, in the above beautiful old town, once the seat



Mr. C. Berry.

of the kings of East Anglia. His father and mother had ten children (eight boys), to ensure the education of whom meant a daily sacrifice. The boys were sent to an evening school kept by a young man named Tanham, whose pupils paid sixpence a week. Charles was the youngest but one, and he was the last of the family to leave the country (which he did at the age of sixteen) for London, entering a business house kept by his sister. Not happy in this, his brother Joseph secured a situation for him in the firm of I. and I. Wilson, Wood Street, London, E.C., hesiers. Illness compelled a departure for home, and upon recovery he entered the service of his eldest brother, Mr. George Berry, nurseryman, Ipswich, and afterwards had charge of his glass houses and frames.

During these years the young man worked and studied at the Ipswich Working Men's College, the principal of which was the learned linguist, the late Dr. Christian.

Some years later Mr. Berry won, in open competition, the prize of "Burlington" Mutual Improvement Society, for an essay on "Thrift." The young gardener competed with an independent young lady, a teacher at the above college, an engineer, and others, all of whom were much better placed in social life. Young gardeners in bothies and others should hope on, never giving up in their endeavours.

While with his brother, the latter thought (at least, he often said) that Mr. Berry would never do any good, for he was always reading at every spare moment. And the aged father thought that "Shakespeare" would never serve any good purpose. The Bible and "Bunyan" would. When the young fellow took a holiday, on one occasion, however, a very valuable Tree Fern, worth about £10, was lost through neglect; it was one of a pair that often figured at shows, near and far.

From the nursery Mr. Berry went, through his brother's influence, to be head gardener at Hill House Park, Ipswich, where his eldest daughter was born. After a short stay he proceeded to Beccles, noted for printing works. That change was a mistake, and a great warning. A rich man's flattering promises were poor in fulfilment. Soon after this Mr. Berry went to Loughborough Park Nurseries, London.

Mr. F. J. Bugg, of Ipswich, sent one of his sons to Mr.

Berry, with a view to his becoming gardener for him. A service of eleven years of happiness resulted from that engagement. Thence he went to the Goldrood, with the Hon. Stanhope Tollemache, B.A., whose book on British trees was so well reviewed by the Press a little time ago. For four years Mr. Berry was engaged in alterations and the general work of a large garden. The Goldrood was purchased by Mr. W. Pretty, so that two more years were spent in still more extensive alterations; large sums of money were spent on the already lovely spot. Thus passed six busy years, years in which many men were dealt with, extensive road-making forming part of the work. During the last five of those years Mr. Berry was lecturing for the East Suffolk County Council Technical Education Committee in the evenings. His thanks are felt to be continual for the kindness of the Hon. Stanhope Tollemache in suggesting the idea that he ought to lecture, and to Mr. H. Fairfax Harwood, J.P., C.C., for inducing him to give the first lectures. And Mr. Pretty was equally kind in allowing Mr. Berry for two years to continue the work.

Mr. Pretty was very generous in giving his gardener a free hand, and in always placing full confidence in him. These things ought not to be omitted in any notice of a man's life efforts. There were some drawbacks in those later years, but Mr. Pretty was not in any way responsible for them. Mr. Pretty is a master worthy of a man's full confidence, for he bestowed that confidence on his old servant. The gladness of those days comes in the knowledge that not any money profit came into the hands of Mr. Berry from any tradesman concerned in the works. This he owes to his father's and mother's conduct throughout their long life.

In 1895 Mr. Berry was elected staff instructor in horticulture to Devon County Council Technical Education Committee. The syllabuses of lectures in the first year's work contained ten lectures. For some time past no syllabus has contained more than six lectures at any one place, and some have had only four. For the last two sessions Mr. Berry has been assisted by an extra lecturer, Mr. Huntley, of Somerset County Council, giving the lectures last winter in North Devon. With this additional help there are lectures standing over until 1903-4 session. Truer testimony is not possible to the steady perseverance of the committee's work, through their instructor. Patience and good temper have wrought much, as exercised by the instructor and his classes. A lecturer makes mistakes, and sometimes misstatements; then nothing but the common sense of both parties can put things right. Mr. Berry speaks of the politeness of the Devon people, for he has had many proofs of it. Their strong point is caution in dealing with strangers.

Seventeen garden centres, with a total of about 300 pupils, are under the care of some local gardener, at a fixed payment, with bonus of 1s. 6d., 2s., or 3s., for each well-cultivated garden, the bonus depending upon the report of the staff instructor, who visits the gardens about three times during the summer. Some of the older pupils are now in the Channel Islands, and some have gone to Canada.

A tool-house, with tools, and seeds are provided by the central committee at Exeter. That committee also provides book prizes for the best cultivated gardens. In this way much garden and Nature reading is made possible for the rising race. Spraying demonstrations on Potato plots and on Charlock are given to the public from time to time. Correspondence over the whole county on matters of interest to farmers and gardeners and to the general public takes place, and much labour, that few only know of, keeps Mr. Berry engaged. Many testify to good received.

The instructor owes much to three organisers under whom he has served—Messrs. T. D. Cowan, W. E. Watkins (East Suffolk), and J. F. Young, M.A. (Devon). He who works, and learns what he can, when brought into contact with men of well-balanced brain power, soon knows the extent of his own attainments; that worker appreciates the larger advantages of his brother, the more fortunate student. Mr. Berry, like thousands of others, soon learned to care for the company of those who knew infinitely more than himself on many subjects of common interest.

No doubt work and study produce a practical student. Those young gardeners who desire to grow into useful, if not brilliant, men (brilliance is rare) can only do so by following in the footsteps of gardeners like the late Sir Joseph Paxton, gardener to the Duke of Devonshire, whose first sketch of the Crystal Palace was made on a sheet of blotting paper in the rooms of the Midland Railway at Derby. That idea was "slowly and patiently elaborated by experiments extending over many years." That is the only method of true progress along any line of life.

In conclusion, we would add that Mr. Berry occasionally contributes to our own pages, and he has much work before him in bringing up to the highest standard the practices of Devonshire small cultivators. His work is of the same nature as that to which we have drawn attention in our past reviews of the horticultural instruction given by Oxfordshire, the Isle of Wight, and Middlesex.

Book Notice.

The Garden Decorative.*

The title of this tiny book would lead one to expect an embrasive treatise. Not so. The authoress concerns herself with a few phases of a very wide subject. Writing about "Why gardens fail to be beautiful," on page 13 she observes that: "We might visit hundreds of gardens to-day without once seeing such things, for instance, as the handsome trailing Callirrhoe involucrata, the hardy Crinums, Spigelia, Lewisia or Arnebia, to mention but a few names taken haphazard from a catalogue of 'Hardy Herbaceous Plants.' So many people seem afraid to order anything that they do not know or have not had recommended to them. They do not seem to realise that in securing for themselves subjects with which they are unfamiliar they are opening out a phase of gardening pleasure that is enchanting—the waiting and wondering as to the kind of blossoms that shall appear in their due season. Gardening minus this experimenting is bereft of one of its most interesting features. In gardening, at any rate, it does not answer to be indifferent to those things of which we are ignorant. A fourth reason for this frequent lack of beauty lies in the fact that those responsible for the general effect are without that subtle sense of fitness that should be the guiding factor in all garden arrangements."

Miss Wells gives a hint for arranging a border: "Too often borders, when seen from a short distance, present merely a vague and indefinite mass of foliage, and we feel what a relief it would be for the eye to rest here and there upon some clean-cut, sharp-edged foliage like that of Irises, Tritomas, Phormiums, and Gladioli, which should break the monotony, and give character and the distinction of bold outline."

Referring to the decorative use of bulbs, she says that Narcissi, Chionodoxas, Scillas, and such-like are much more beautiful when planted in large quantities, and we think everybody will agree. Copses and other comparatively "waste ground," could be made beautiful if planted with spring-flowering bulbs.

But the summer-flowering bulbous and allied plants are not forgotten; a whole chapter is devoted to them, with here and there a cultural hint, as he gracefully slips from one species or genus to another. We are glad to find Miss Wells alluding to the Meadow Saffrons and the hardy Cyclamens, together with the Winter Daffodil or Sternbergia. "The hardy Cyclamens—treasures, indeed! of which I verily believe three-fourths of the owners of gardens are ignorant."

In true Robinsonian style, Miss Wells denounces the geometrical flower beds that appear to be set into lawns as a matter of course with the great majority of gardeners. "Another disastrous method of dealing with a lawn is to cut it up into a perplexing number of complicated and intricate beds devoted to the flat planting of various dwarf and semi-dwarf bedding plants. That is gardening on its most mechanical and uninteresting lines, and is diametrically opposed to the real laws that should rule the garden scheme. These geometrical beds, when surrounded by gravel paths, and edged with trimly-kept Box, often have a quaint and formal charm when in keeping and fitness with the rest of the garden. But there is nothing to commend them when cut in the grass. A lawn made to flaunt a heart of yellow Calceolarias, a crescent of Ageratum, a diamond of scarlet Geraniums, does not commend itself to the true gardener-artist. Than such a display the unbroken and restful stretch of green lawn is infinitely to be preferred."

When discussing Hollyhocks under the chapter "Plants that Succeed in a Heavy Soil," the writer says that she has had Condy's fluid recommended as a preventive of the disease, the fluid being applied with a sponge to the leaves on the earliest appearance of the infestation. She has never tried it.

Other chapters are devoted to plants for hot, dry borders; the rock garden; making the most of a small garden; purple flowers; and long-flowering plants. There are a few printer's errors in the pages, and in naming *Oenotheras* the lovely *speciosa* is overlooked; while from the list of good purple flowers *Senecio pulcher* is wanting. Possibly if another edition is called for, the writer may add to the value of the little work with a chapter on dwarf shrubs and undershrubs, perhaps another on water

plants, or on window gardening and climbing plants. Possibly something could be said about vases, urns, terraces, walls, fountains, arbours, &c., all of which come under the title of the book. And then an index would assist toward the finding of a reference—but perhaps we are asking too much!

Antirrhinums as Winter Pot-Plants.

A paragraph in a New York gardening paper recently, suggesting Antirrhinums as pot plants to succeed Chrysanthemums seems to us worthy of special notice. Doubtless few at first thought that the beautiful annual Schizanthuses would become such general favourites for conservatories in early spring as they have, and Kew, amongst other gardens, can show us how to make use of many other common yet beautiful and showy plants, for pot use and indoor employment, at a season when they can hardly be expected out of doors.

Objections are raised to the inclusion in conservatories of subjects of a hardy character, or common nature, which are so productive of blossom in due season in the open air. But if a plant has merits, and if it is entirely absent from the open bed or border, its value in another direction (indoor culture) assumes an entirely different rate. Clematis Jackmanni grows luxuriantly in South of Scotland gardens, but the good folks at Balmoral find it advisable to afford the protection of a greenhouse; and is it not worthy of the care?

Assuming then, that the common Snapdragons are worthy of pot culture, if no pot plants are at hand, late sown or rooted plants from the open ground will do very well. Do not attempt to grow a promiscuous assortment of colours, but stick to one or two good colours, like white, yellow and pink, propagating from the best strain each season. Antirrhinums can be supported in the same way as Carnations if it be that the tall-growing kinds are selected. Nice plants may also be grown in 5in or 6in pots.



A Pot-grown Antirrhinum.

* "The Garden Decorative." By F. M. Wells. London: The Cable Printing and Publishing Company. 2s. 6d.

NOTES

NOTICES

Potato Spirit v. Petrol.

Mr. H. Dunkin, instructor in horticulture to the Warwickshire County Council, writing in support of the National Potato Society, drew attention to the probable use of Potato spirit in place of petrol for motor vehicles in the near future. The petrol is said to be less dependable than Potato spirit; but, of course, the quantity of the latter is too small to make it a commercial commodity at present.

From Producer to Consumer.

The Great Western Railway Company is preparing a pamphlet for public circulation and distribution, containing the names of farmers and others residing in districts served by its system, from whom dairy, farm, and market garden produce can be obtained direct by the consumer. All that it is necessary for anyone to do in order to get his name included in the list is to apply at the nearest Great Western station for a form which will be provided for the purpose.

"The Heather."

At a recent meeting of the New York Florists' Club, Mr. Alexander Wallace, editor of "The Florists' Exchange," read some selections from his new book on "The Heather." He dwelt most particularly on the distribution of the plant, its discovery in America by Jackson Dawson in 1861, and the discussion among botanists that ensued relative thereto. He also told of some of the uses to which the Heather is put by the Scottish people, and of the great affection in which the plant is held by Scotsmen, characterising it as "the flower that had made Scotland famous," for, although Caledonia was renowned for her great men, whisky, and other products, modern authors preferred to designate their books treating on Scotland by such titles as the Land of Heather, proving the magnetic charm of the humble shrub. He also quoted from a recent article in a London gardening paper showing that white Heather is now a favourite "buttonhole" of royalty and gentry in Great Britain, and added that the Scottish-American millionaire, Andrew Carnegie, recently had taken up the fad, he having returned from his native country with a spray of white Heather in his buttonhole. The selections were much enjoyed by the members present, Mr. Wallace being frequently applauded, and at the end awarded a rising vote of thanks.

Exeter Gardeners' Society and the late Secretary

At a convivial gathering of members of the Devon and Exeter Gardeners' Association, at the Castle Hotel, Mr. Andrew Hope, who recently resigned the secretaryship of the Association after twelve years of honorary work, was presented with a gold double watch chain, with gold-mounted seal attached, in recognition of his services. The chair was taken by Mr. W. Mackay, hon. treasurer of the Association, who acted as hon. secretary to the Testimonial Committee. Mr. Mackay eulogised the services of Mr. Hope, and remarked that the Association, like some employers of labour, did not feel they had so good a servant until they had lost him. Then it occurred to them, in the words of the poet, "It is very hard that wit and learning should have no reward," and so they decided on making a presentation to Mr. Hope, in token of the regard and esteem in which he was held by the Association. Mr. Hope, in acknowledgment, remarked that the members of the Association had met together now for twelve years for the common good, and he felt very keenly the many kindnesses he had received from those connected with it. The work of the secretaryship had been to him a great pleasure. The Association began in a modest way, but the first year was a success, and the second a greater one. As years went on it became an institution of which they were all proud; and, without being at all boastful, he thought he might say that it created a certain amount of interest among those who had a taste for gardening in the neighbourhood of Exeter and of the county of Devon.

Emigrants' Information.

The January circulars of the Emigrants' Information Office and the annual editions of the penny handbooks show the present prospects of emigration. The notice boards are now exhibited, and the circulars may be obtained free of charge at more than 1,000 public libraries, Urban District Councils, and institutions throughout the country, or from the Emigrants' Information Office, 31, Broadway, Westminster, S.W.

Watson's Nurseries, Clontarf.

The new entrance to Watson's Nurseries at Clontarf, Dublin, which has been in preparation for some months, is now open, affording a convenient entry on tram line to the now largest nursery in Dublin, recent additions having brought the grounds adjoining railway and at Hollybrook (close by) to thirteen acres in extent. A good entry to these nurseries is an acquisition which cannot fail to be appreciated by the firm's numerous customers.

Racial Variation in Plants.

The Violets of Philadelphia afford to Mr. W. Stone the text for an article on racial variation in animals and plants, which appears in the October issue of the "Proceedings" of the Philadelphia Academy. In the course of this article the author directs attention to the growing practice among American zoologists of discarding the use of trinomials, and classing as a species every distinct animal form, no matter how slightly differentiated. This usage, it is urged, receives support from the methods of botanical classification. Where is all this splitting going to end? is the question which naturally arises in the minds of old-fashioned zoologists.

A Judge Samples Potatoes.

Judge Bradbury, at the Wigan County Court, heard an action in which John Graham, farmer, of Dalton, near Wigan, claimed £15 15s. from Thomas Myers, a Potato merchant, of Parbold, near Southport, for 4½ tons of Potatoes sold and delivered. The case for the plaintiff was that whilst travelling in a train to Wigan the defendant entered into a contract for the supply of Potatoes, and that after they had been delivered he repudiated the contract, and alleged that the Potatoes were not marketable and not of the description given at the sale. His Honour having inspected a sampleload of the Potatoes found that the defendant was bound by the contract, and there would be judgment for the plaintiff for the whole amount claimed, with costs.

Chrysanthemum History Notes.

At a recent meeting of the Paignton (Devon) Gardeners' Association, Mr. G. Hall read an interesting paper on "Chrysanthemums." He remarked that it was a flower he was very fond of, coming at a time when other flowers were getting scarce, and there was not another flower that could be credited with being a better display. It was surprising to see the advance made, seeing that when first introduced to this country they were no larger than a Daisy. The Chrysanthemum, the national flower of China and Japan, was first introduced into England about the year 1764. In 1789 a French merchant imported three large flowering varieties from China, the only one that survived finding its way to England and being the first large flowering Chrysanthemum known. Mr. Curtis in 1796 described it as a plant of strong growth. From 1798 to 1836 other varieties were introduced, which included the principal colours; in 1802 the quilled pink, in 1824 the Anemone flowering variety, and in 1826 there were forty-eight varieties growing in the Horticultural Gardens, Chiswick. The pompon varieties originated from two small varieties, known as Chusan Daisy, which were introduced by Mr. Fortune from China in 1846. In comparing the Chrysanthemum of 1903 with those of the earliest introduction it served to give an idea of what florists had had to contend with. From 1865 to 1903 the progress of the Chrysanthemum had been rapid and decisive, both in hybridisation and cultivation, so that many of the newest varieties were marvels of symmetry and beauty. He confined his remarks on culture to the Japanese section, and growing from one to three or four blooms on each plant. The first thing to do after the old plants were cut was to thin out some of the cuttings, where too thick, and place the old stools in a cool house or frame as near the glass as possible. Mr. Hall then dealt exhaustively with propagation, first and second potting, and final potting, advocating March or April for second and early in June for final potting.



Trade v. Private Exhibitors.

"Fairness" is not an exhibitor, I should say, or he would not take up the cudgels on behalf of private growers of Chrysanthemums. Speaking as an old exhibitor, I am sure we, as private growers, did not object to meet any Chrysanthemum specialist who thought fit to enter the competitive lists. Why should not a tradesman compete? He has no more convenience than the bulk of private growers, and often not nearly so much glass accommodation and labour as many persons in a private garden. If he can produce more skill and energy to display it, surely credit attaches to him who does. Perhaps "Fairness" will tell us why trade should not be pitted against private growers. I should say Mr. Chandler never was more pleased than when he beat Mr. Vallis at Bradford in November last in the leading class at that show. Extra good cultivators of Chrysanthemums in the Trade are an exception; their forte does not lie so much in this as keeping a representative collection together and providing huge stocks of good cuttings and plants for their customers, which they invariably do; but when we see one who by great exertion and skill does do something to educate others by his exhibits, why should he be excluded and the public deprived of knowledge?—E. M.

Horticultural Education.

The *Journal of Horticulture* for December 17 contains some remarks under the heading "Practice with Science." In the course of his letter the writer refers to "the purely practical gardener, the rule-of-thumb man." But is there such a man? My practical experience has taught me that if a man is practical it is impossible to act up to any rule-of-thumb; that is, so far as horticulture is concerned. I would like to ask the question: Is it possible to hold an examination in horticulture which will give a good result, whether a man is capable of managing a fair-sized garden? Of course, we can have the garden managed on paper by rule-of-thumb; but in actual practice there will be many divergencies, and they will have to be met.

Again, I have never met the gardener yet who looked askance at theoretical instruction. More than this, I have always received some help in this direction from every head I have had the pleasure to serve under—a real pleasure it is to serve under a man who takes an interest in his pupils; hard work, length of hours are all the same; a goodwill exists between them. A love for his calling runs in the blood of the pupil, and as a well-known head gardener once said to me, "He knows no such word as 'cannot.'" No, my worthy friend, colleges do not turn out men with any more mettle than the creak bench does. If a man is determined to learn the scientific side of gardening, all he needs is a good sound education; the remainder he will acquire for himself.—W. B., Ross.

Want of Knowledge in Fruit Culture.

It comes as a terrible shock; a piece of inconceivable intelligence to those of us who have studied the question of fruit culture for Great Britain; who have urged the need for study and experience ere embarking on the commercial aspects of fruit culture; and who have discerned improvements and rational conduct in varied cases in the counties, to learn this: That a Devonshire gentleman has just planted between 5,000 and 6,000 Apple trees and does not know a single one of the varieties that have been supplied to him! This is an authentic case. The gentleman is a personal acquaintance of my own, and casually mentioned his "enterprise" as I journeyed with him in a train to London last week. Asked how it came about that he did not know what kinds he had bought, the reply was that a local nurseryman had supplied the stock without names; and, from what I gathered, it would appear that the nurseryman himself did not attach much importance to appellatives.

I ask, Is this not a very serious matter? Have the papers, and the County Council instructors, and the Board of Agriculture and Fisheries been all at work these years past without penetrating the Egyptian darkness? What good will Government Departmental Committees of Inquiry do in the face of such Fuegian obscurity? I could tell of another cultivator, not resident in "fair, fertile Devon," but Suffolk, the county of corn, who was pruning some very shapely and vigorous young bush

Apple trees at Christmas, a year ago, when I called upon him. Naturally, I wondered what his favourites were—for he was evidently pruning to some purpose; but, lo! came his answer thus: "Ah! they're a mixed lot; the forester got me the grafts from somewhere and stuck them on."

Again I repeat, Is this not a very serious matter?—PATRIOT.

Chrysanthemum Critique Controverted.

Your correspondent "Sadoc" (page 579) says he is sure that your less experienced readers will welcome me as their champion. That being so, I hope it will interest and encourage them to know that at the last Birmingham great Chrysanthemum and Fruit Show, in the open class for 12 specimen blooms displayed for effect (11 entries), I was placed first with C. Molyneux, Mrs. Barkley, W. R. Church, M. Louis Remy, Mrs. Hummel, Duchess of Sutherland, Florence Molyneux, Australie, Mrs. J. Lewis, Ethel Fitzroy, Mrs. Mileham, and Sensation. In the open class for 2 varieties, 5 of each (8 entries) I was again first with Australie and Le Grand Dragon. And in a like class for one vase of 5 yellow blooms (10 entries), I scored second to Mr. Crooks with F. S. Vallis. The previous week I had won two first and one second prizes at Malvern Show, and to attain the above results I had only grown forty-five plants for specimen blooms, including three W. R. Church, two Mrs. Barkley, four M. Louis Remy, one Mrs. Hummel, two E. Molyneux, two F. Molyneux, one Duchess of Sutherland, four Australie, three Mrs. J. Lewis, two E. Fitzroy, two Mrs. G. Mileham, one Sensation, and four Le Grand Dragon.

I give these particulars to show that it would be unwise for any grower in a small way to throw out any reliable variety until he has proved that he has a better one to take its place. The blooms of Duchess of Sutherland exhibited by me were much deeper than they were wide, and only incurved in the sense that they were not entirely reflexed. Any grower in a small way who attempts to grow this variety will have to be more careful with his plants than "Sadoc" is with his words. The bloom of Mrs. Hummel shown by me at Birmingham was deeply suffused with rose colour, so much so that several other exhibitors doubted that it was rightly named. But if they thought, like "Sadoc," that I was only prepared to "assume," they found that I could "lay down the law." Replying directly to the questions "Sadoc" asks about the varieties F. Molyneux and W. R. Church, I can only say that bad cultivation will spoil the appearance of the best variety in commerce.—R. BARNES.

Question Night.

I was glad to see this noticed in the *Journal*, and perhaps you may allow me to say a few words more about the matter. Question, or Hat Night, is a most important function of an association, but which is but rarely taken advantage of. I have long since arrived at the conclusion that its employment is not only the most enjoyable means for a night's entertainment, but is also, what is of still greater importance, the most profitable of any which is likely to be introduced to such sombrous meetings. The ordinary gardeners' association is not the place where old or young are likely to add considerably to their knowledge, save, perhaps, distorted extracts, clumsily annealed together, from the great masters of last century. This is certainly good enough in a way, but now, with a ridiculously cheap Press, and its concomitant train of knowledge, there is no reason why any should require to be indebted to another as searcher and dictator of antique facts and theories. The very much laboured paper invariably takes the place of the practical, matter-of-fact, sound sense and experience, which always is the outcome of Question Night.

Perscnally, I have had to do penance listening to papers read at meetings of this kind, which did not rise in intelligence above the ordinary schoolboy essay; but I find not so much fault with this as I do with the system which gives it character. Why, if this form of disseminating knowledge is necessary (which I think is not), do associations not turn this heavy piece of ordnance into the form of debates? Gardening operations, like most other things, admit of more than one way of making them right. How often do we appear before the world as if there was one way only? Without dilating further on this vexed question, I hope the time is not far distant when the pursuit of knowledge shall be based upon more stable principles, and for ever bid adieu to conventionalism.

Few and unburnished may be the replies to the question but then it is the person's own experience, which is doubtless more valuable than a cartload of assertions which, mayhap, are quite new to the essayist himself. Let us think for ourselves, lest it may be said that the glory of the art died with the great masters, its Paxtons, Hoggs, Knights, &c., and the way to get at this is by giving more attention to Question Night.—D. C.



Schizanthus.

Sturdy young plants growing together in pans or pots, where they have been pricked out to strengthen from seed pots, ought now to be potted permanently. Several plants potted together in 5in or 6in pots will form good specimens. Use loam, leaf soil, and decayed manure as a compost, potting firmly, and place the plants near the glass in a cool house.

Bedding Plants.

"Geranium" cuttings in pots or boxes may be kept comparatively dry during the present dull season, especially in a cool house. Pick off the dead leaves. Stock plants of Lobelias, Iresines, Mesembryanthemums should be kept fresh and healthy on a shelf near the glass. Winter tuberous Begonias in dry sand or cocoa-nut fibre refuse in a cool, dry place.

Trifolium alpinum.

The Trifoliums, or Clovers, are generally looked upon as mainly forage plants; but there are several of such an ornamental character when in bloom that they are viewed deservedly as well suited for the flower garden. Among these we may well place *Trifolium alpinum*, which comes into bloom about July. Although it has been a long time in cultivation, it is not easily obtainable in nurseries, and it is a little time since I have come across it in a private garden. It has a good-sized head of purple flowers and leaves of the general character of those of the genus. They are described in a first-class work of reference as having "lanecolate linear, ternate leaflets, with long petioles." This is a good description in botanical characters of the leaves. The plant is dwarf in habit, and only grows 3in or 4in high. *T. alpinum* likes a rather dry soil and a sunny position. It is more in keeping with the rockery than the border. It is one of the best of the Clovers for this purpose. Seeds are sometimes procurable, and offer a ready means of raising a stock of plants. They may be sown in pans in a cold frame.—A. R. N.

Euphorbia jacquiniæflora.

This variety of *Euphorbia* is not grown so extensively as *E. pulcherrima*, but in my estimation is equally as handsome, though perhaps not quite so bold and striking. As it is a subject somewhat exacting in its needs, a few remarks on its culture may not be out of place here. Plants that have bloomed during the winter, cut back to within 18in of the soil, and placed in a brisk temperature, soon produce a quantity of cuttings. These should be removed with a sharp knife without a heel, and prepared in the usual way, and inserted in wet sand and placed in a gentle bottom heat. Give the cuttings a gentle dewing over occasionally to prevent them flagging, and maintain a moist atmosphere. By this method they will root readily.

When well rooted pot them singly in well drained, small 60-sized pots, in a compost made of equal quantities of good peat and loam, with a fair sprinkling of sand. It is as well to warm the soil before potting, and to perform this operation, if possible, without submitting the plants to a lower temperature for any length of time, as this often tends to seriously check their growth. Place the plants in a temperature of about 65deg Fahr., and in a light position, and keep the atmosphere close and moist for a few days, withholding water until really needed, afterwards gradually reducing the temperature to 60deg Fahr. when they are well growing.

On fine days they must be shaded from the hot sun, and a gentle syringe over with clear soft water will benefit them and keep them free from red spider and other pests. Pot on into 5in pots when necessary, and treat in the same manner as stated above, taking care not to check them by a sudden reduction of temperature or cold draughts. Above all things do not overwater, as this treatment they will not stand, it being in many cases the cause of failure in growing this beautiful plant.—E. B., South Berks.

Cinerarias.

Cool, moist air suits *Cinerarias*, and the pots should stand on a moist base. Keep the soil healthfully moist, admitting air to the structure on favourable occasions. Occasional vaporising should be resorted to for destroying aphides. The plants must be quite clean before flowering. Those in an advanced condition may be encouraged to develop in a warm greenhouse.

Floral Decorations.

Harmonies, not contrasts, seem to be mostly sought after by our London florists. We would welcome notes at this time. The prettiest exhibit in the main hall at the New York Show was arranged by the Wm. Graham Company. It was a pagoda of white Birch bark pillars, canopied with *Asparagus* and Chinese lanterns. The pillars were studded with choice blooms of *Chrysanthemums* with short stems inserted in glass bulbs. In the centre was a pyramid group of choice *Chrysanthemums* in vases, and in the top of each pillar was a basket of choice autumn leaves.

Thunbergia alata.

This is a well-known warm house edging plant, having slender, trailing stems and rich yellow flowers. Our illustration shows a spray or flowering shoot of natural size. The plants can be had in flower in June, July, and onwards. Being hardier than any of the other species, *T. alata* and its varieties can be employed as basket plants to be hung in cool houses or verandahs. Treated as an annual, the seeds require to be sown in February or March in pans of light soil, and the young plants are pricked off and potted as they advance. A suitable compost consists of fibrous loam with a little peat, and a lesser amount of thoroughly rotted manure and some coarse sand. The plants may also be carried over from cuttings, but owing to their susceptibility to the attacks of red spider it is not generally advisable to propagate by this means. *T. alata* has two good varieties, *alba* and *aurantiaca*—the one white, the other orange.

Tropæolum Leichtlini.

Those who know the pretty perennial *Tropæolum polyphyllum* will have some idea of the appearance of the newer *T. Leichtlini*, which was sent out first by Herr Max Leichtlin, and which is said to be a hybrid between *T. polyphyllum* and *T. edule*. Although introduced about eight or nine years ago, it has not yet found its way into many gardens, although a brighter plant than the older *polyphyllum*. Its greater effect is caused by the colour of its flowers, which are of a bright orange yellow, with some red spots, instead of the paler yellow of *T. polyphyllum*. It flowers about May or June, and the foliage soon dies off afterwards, so that those who plant it must take this into consideration. It is desirable for those who want a trailing plant of comparatively short growth, and which can afterwards be cleared away without disturbing the roots. Herr Leichtlin assures me that it should be deeply planted, a foot to a foot and a half being a suitable depth at which to place the tubers. It is hardy, and will be a welcome variety to those who care for the perennial *Tropæolums*.—S. ARNOTT.

Encouragement of Cottage Gardening.

The following short paragraph from the "Sussex Daily News," is a delicious little tit-bit for those who keenly endeavour to assist amateur and cottage gardeners. The most gratifying feature is that the work is presided over by one of the most influential, scholarly, and energetic gentlemen of the neighbourhood, who had around him other notable local ladies and gentlemen. One could preach a sermon on the subject, showing that this way lies the road for the cure of many evils, and for bestowing much happiness on rural communities. The paragraph ought to be brought before country clergymen in districts where such societies are not yet in existence. It runs thus:—"Canon Pennethorne presided at a meeting of the Heathfield Amateur and Cottage Gardeners' Mutual Improvement Society on Thursday, December 10th, and there were also present Mrs. Pennethorne, the Rev. T. B. Sykes, Mr. W. C. Alexander, J.P., Mrs. A. Aynscombe (hon. secretary) and others. It was reported that there was a balance of about £18 in hand. The Rev. Canon Pennethorne was re-elected president, the Rev. A. T. Roots treasurer, and Mrs. Aynscombe hon. secretary. The committee was also elected, and included Mrs. Pennethorne and Miss Alexander. It was decided to re-introduce prizes for the best-kept cottage garden."



Thunbergia alata.



Propagating Chrysanthemums.

Obtain the strong, sturdy young sucker growths without any flower buds, for propagating. Their length may be about four inches. Cut the base level just below a joint and remove the bottom leaves. Prepare some sandy, light compost, consisting of equal parts fibrous loam, sweet leaf soil, and silver sand, which well mix and fill into drained 3in pots for several cuttings, or into 2½in pots for single cuttings. Water after insertion, placing the pots on a moist base in a frame or under handlights. Keep close, but take off the handlight or open the frame each day, wiping off the condensed moisture from the glass. All the late and midseason varieties may be inserted first, following with October flowering and early varieties.

Old Stock Chrysanthemums.

Old plants which have done flowering and have been cut down must be placed in a moderately light position in a house safe from frost, so that they may have no check in the production of cuttings. When sufficient cuttings have been secured from them place the pots in a cold frame or a sheltered place outdoors, if it is intended to plant them out in the open eventually. If not required for further use turn out of pots and pack the balls of soil and roots in a compact heap. The material, when chopped down and mixed with a little fresh soil, will come in admirably for general potting purposes.—E. D. S.

Good Winter Chrysanthemums.

What a wealth of flowers can be obtained at this season to what was available to the older school of gardeners, who could count the number of winter-flowering subjects on the fingers of one hand! The Chrysanthemum plays a very important part in winter decoration, there being now genuine winter-flowering varieties. There is no doubt but white is most serviceable, and therefore valuable. When calling on Mr. W. Gibson, Sandown, I.W., last week, I was attracted by a very fine batch of the Godfrey's Winter Queen, just in their prime. There were 500 plants, some carrying a dozen flowers each on long single stems, of good size and substance, and pure white colour. A batch of Mrs. Thomson (another good late variety) was just finished. Framfield Pink looked pleasing with the other varieties, and Tuxedo (bronze and yellow) is another variety that is of service to those who require a change in that direction.—C. ORCHARD, Bembridge, I.W.

The Chrysanthemum Analysis.

I am very pleased to see W. R. Church again at the top of the poll this year. I quite thought there would have been at least five others with the same number of votes—Mrs. Barkley, Mrs. Mileham, F. S. Vallis, Bessie Godfrey, and Miss E. Fulton. I look upon these as the best and easiest "doers" of any, but I guess the five which are recorded to Princess Alice de Monaco are meant for Miss E. Fulton. And probably some of the eleven votes that are given to Bessie Godfrey in the novelties list would have been given to it in the best fifty had it not been taken for a novelty. It is a great pity that varieties get two names, for they are sure to become divided, and thus lose votes. I look upon the various audits in the "Journal" as the best guides growers can have, for no list could possibly be fairer or more genuine. Many people wait for its publication before sending in orders; and for myself, I thank the compiler and the editor most heartily for thus helping the Trade.—W. WELLS.

Chrysanthemums: October to January.

As you are aware, your paper is acknowledged as the best and most up-to-date by us market men. We read the "Journal" very carefully, hand it over to the men; and recommend them to read it also. We grow a few big Japanese Chrysanthemums, show a bit at times by way of variety, and so are interested in the Chrysanthemum analysis. But some of our great favourites are "dumped" very low. When I read the result of the analysis I wonder very seriously if we are as up-to-date as we ought to be. We grow "Chrysanthi" by the thousand, and very few varieties; it is a serious thing if a man is growing two thousand of one variety, and that not one of the best. Now, sir, can you come to the rescue of the market men, and put us on an up-to-date footing? If Mr.

Molyneux or some other of your numerous contributors could give us a list of say about thirty varieties—the latest, best, and most up-to-date kinds—to keep us in flowers from October till January, he would be helping a large and worthy branch of the calling—"the market man."—W. D. WHITTAKER, Gainsborough.

[Will our experienced readers kindly respond? We might this week call our correspondents' attention to the report of the R.H.S. See Lady Plowden's exhibit.—Ed.]

Vegetable Notes.

Propagating Potatoes.

The present boom in Potatoes will undoubtedly have the effect of causing growers generally to pay special attention to rapid methods of propagation. When new varieties have been purchased at hitherto unheard-of prices there is naturally a desire to run them for all they are worth while the boom lasts, because nearly everybody who buys at "fancy" prices does so with the object of turning their knowledge and judgment to monetary advantage, and some have already succeeded splendidly in that direction.

In one respect the present Potato mania is already bearing fruit, for it is turning the attention of thousands to some of the advantages of country pursuits, and is also stimulating the workers in hosts of rural districts to take the keenest possible interest in Potato growing by adopting the most up-to-date methods of culture. I believe, therefore, that the subject of these notes will be of special interest to Journal readers at the present juncture.

Those who have valuable varieties of Potatoes in their possession must regulate their method of procedure by the conveniences at command. If they have no glass the Potatoes should be stored in a cool, dry, but frost-proof place, so as to keep the eyes from starting as long as possible. Then, at planting time the sets should be cut into as many pieces as there are eyes, the cut portions being dressed with finely powdered lime, and left for twenty-four hours to dry thoroughly before planting. Where, however, the convenience of an intermediate or greenhouse exists, more than double the number of plants may be obtained from a given quantity of tubers.

A start should be made in January. Prepare as many shallow boxes as are required by placing in the bottom a layer of three parts cocoa-nut fibre and one of sharp sand, or leaf soil which has been charred to kill insect life may be substituted for the fibre. The Potatoes should then be cut into from two to six pieces, avoiding the eyes in doing so; then dress all the cut surfaces with lime, and after the wounds have become thoroughly dry press the sets into the prepared material already placed in boxes, allowing 2in or 3in of space between each set. If the house in which they are started has a bed with bottom heat, stand the boxes in the bed in a light position. If there is no bottom heat, place on the stages over the hot-water pipes. During bright weather syringe the sets lightly to maintain the necessary moisture. With this treatment young sprouts will soon be sent out, and when they are a little more than an inch in length they can be easily pulled or twisted off, and inserted as cuttings.

Before doing this drain a number of small pots with cinders or charcoal, fill them a little more than half their depth with compost prepared as previously advised, and then insert a young sprout in the centre of each pot, sinking it to a depth of about a quarter of an inch. If the soil is fairly moist, do not water for a few days, but spray finely with the syringe. Should the material, however, be dry, water through a fine rose, and until young roots have been sent out freely rely rather upon the syringe than the water pot to supply the needed moisture. Stand the pots in position similar to those occupied by the boxes.

The sets left in the boxes must be watered or syringed as required, and the effect of removing a shoot from the centre of each eye instead of cutting out the eye will be that several somewhat weaker "sprouts" will be sent out from each eye. These also should be inserted as cuttings when long enough. As long as the cut sets continue to send out shoots keep utilising them as cuttings. The earliest batch of plants should be shifted into larger pots when ready, and when the tops are fairly strong they also may be inserted as cuttings. In fact, propagation may go on until it is time to transfer the plants to cold frames to get them thoroughly hardened before planting in the open air.

Those who have only a frame may, by placing it on a gentle hotbed, work on similar lines to those given above, with this exception, viz., that they should not start so early by a month or six weeks. In the spring months the windows of dwelling-houses (where not in prominent positions) might be turned to good account.—H. D.



The Inquiry into British Fruit Culture:

The "Daily Telegraph," London, had a most suggestive article under this head on Saturday of last week, and some of the points are reprinted here:—

Unlike many industries which have been inquired into, this does not plead deterioration as a reason for investigation. On the contrary, the orchard areas of Great Britain show consistent expansion, the growth being largest in England and least in Wales. Against the 199,178 acres of orchards in 1888, we had in 1901 no less than 234,660 acres. So with small fruit farming. The area under cultivation now is one-third that of orchards, and of the total acreage one-third is in Kent, the great centre for Raspberries and Strawberries, where most large farms have their fruit land, and many farmers, particularly out Canterbury way, give their undivided attention to fruit, much to the advantage of the consumer, who thereby obtains a better nurtured article. So also with the hothouse culture of Grapes, Cucumbers, Nectarines, Pineapples, and so on, which has increased tenfold in thirty years. It is computed that in the whole of England there are over 1,200 acres under glass—but not altogether for fruit, flowers demanding a very large part of such careful protection. At Cheshunt, Herts, you might pace every inch of 130 acres without leaving the shelter of a transparent roof. In Berks, Bucks, Cambridge, Essex, Middlesex, Norfolk, Oxford, Sussex, Warwick, Wilts, Devon—throughout the west and south commercial fruit growing has made great strides in recent years; Devon, Hereford, Somerset, Worcester, Gloucester—the cider country—have half the orchard area of England under cultivation. So that it is not on the score of lessening vitality that fruit culture needs the stimulus of inquiry and report.

The real reason is that there are so many ways in which it may possibly be improved that formal and exhaustive investigation is desirable. An additional reason is that we are in the habit of spending about three millions sterling upon imported fruit, such as we can and do grow at home. Over one million went for Apples alone in 1901. In 1896 the record outlay of £1,582,000 was incurred. Of course no amount of home cultivation could render us quite independent of these imports, but it might partially do so.

Cherry growing is making headway, in spite of very severe competition from France. Cherries are a perishable fruit, and taking advantage of that fact the home cultivator is striving very hard to keep the home market. That his efforts are justified is shown by the prices yielded; £80 per acre is not an uncommon figure, and even £100 has been obtained in exceptional cases. France has the pull of us in respect of climate. Her fruit is quicker developed than ours, and, reaching our markets early in the season, fetches the highest prices. But improvement in cold storage during transit is tending to discount this advantage, for perishable fruit may now be brought over very long distances and delivered as fresh and luscious as when gathered.

With these not unfavourable facts before them the Departmental Committee will be able all the more thoroughly to deal with details that bear upon cultivation pure and simple. There are, of course, anomalies of transit to be inquired into. It is still the fact that proportionately fruit may be sent at cheaper rates from Kent to the great northern cities than from Kent to London. On that point evidence will be invited. How much can be done to stay the ravages of pests, and prevent their appearance, is a very important matter for inquiry. Attempts have been made to place upon the fruit farmer the responsibility for damage done by pests which have fastened upon his acres and made sortics elsewhere. To such attempts there has been violent protest. There is also the question of cider-making, and the causes of the slight falling off in Apple cultivation for this business. Upon this matter much light will no doubt be thrown by those who have been concerned in the experiments at Mr. Neville-Grenville's Home Farm, towards which the Board of Agriculture have granted £600. Improvements in the management of fruit land, the best methods of cultivation, the likeliest areas for cultivation, the development of the trade in soft fruit for jam-making, as now carried on so extensively in Kent, in spite of heavy importations from France, Holland, Belgium, Spain, and Italy; the making of fruit pulp—all these are fitting matters for the consideration of the committee which has been appointed, on the principle that if any inquiry is to be of value it must cover the whole subject and not deal with separate branches.

Pines.

If preparations have not been made for producing ripe fruit during May and June, when British grown Pineapples, from their freshness and high quality, are in request for the London season, no time should be lost in attending to the matter. Black Jamaica, an excellent fruit, especially in winter; Charlotte Rothschild, and Smooth-leaved Cayenne plants, which however promising now, failed to show fruit during October and November, will not throw up the fruit in time to ripen at the time named. Attention must, therefore, be directed to such as attain perfection in less time, as the Queens, Enville, and Providence varieties.

Select at once those plants which have an enlarged base with a tendency to open in the centre—evidence that the fruit will shortly be visible—and place them in a light house or pit, affording a brisk bottom heat, say 85deg to 90deg, a top heat of 60deg to 70deg at night, 70deg to 75deg by day, artificially, and 10deg to 15deg more from sun heat. When the external conditions are favourable a moderate amount of ventilation must be given, and the atmosphere should be genial, syringing the plants once or twice a week, and then very lightly, damping the paths and similar surfaces in the house, except the hot-water pipes, on fine afternoons. Water will be required at the roots about every ten days, but do not stop it until the soil becomes dry, and then in a tepid state with a little guano (1oz per gallon), or some other fertiliser on it, and always copiously, dribblers doing more harm than good.—PRACTICE.

Fruit at Christmas.

(Concluded from page 605.)

The Banana we are now accustomed to see at all times and on many tables will now be found. Oranges, too, in abundance one expects to find at Christmas, but the less one says as to the quality of the cheaper grades the better, perhaps; unless a high price can be afforded, this fruit is as well left out of the dessert list for a month or six weeks. Cranberries, Pomegranates, and other sorts are on offer, and many or most of these we can never hope to produce in marketable quantities in this country. The same may also be remarked in connection with Pines, good fruits of these being procurable at four or five shillings apiece—a price which is not likely to tempt our own growers to put home-grown specimens on the market. To have a fine Pine for Christmas Day was once the ambition of many gardeners, but now they are perforce content to see foreign produce installed in the place of their own products. This does not apply to all gardens; in some few Pine growing is still carried on, but they have nearly everywhere been crowded out of existence in this country.

The dainty boxes of crystallised fruits so very much in evidence at Christmas are to be met with on every hand. It is a matter of some satisfaction that not nearly all of them are from foreign sources. In this branch of fruit preserving some of our leading firms hold a strong hand, but it is not of such utility or importance as some of those previously mentioned. It may thus be seen, I think, that only the poorest of the poor need be without fruit at the season of peace and goodwill, and even they are frequently catered for out of the goodwill of those in better circumstances. May another Christmas find us better supplied with those hardy fruits of our own growth, which are now generally recognised as factors towards the health and well-being of the population, and may a steady advance be made in preserving, by native effort, a greater amount in the best presentable form, not only at the joyous time of Yuletide, but for all times of shortage and scarcity.—SANTA CLAUS.

Apple, Ecklinville.

Every moderately extensive garden in the South of Scotland and Ireland, and to a less extent in England also, relies on the Ecklinville Apple for good cooking fruits in October and November. Not that it is exclusively depended upon, but it is such a generally heavy cropper that, if Ecklinville fails, poor must be the Apple supply in the district. At Trinity Grove, Edinburgh, where the soil is a warm (one had almost said hot), very sandy loam, this fine Apple is regarded as one of the finest, and the fruits are yearly of a large size (as big as an average Warner's King), with smooth, bronzy, brown-spotted skin, and of solid weight. As an eating Apple it is not despised by numbers of people.

Dr. Hogg says that "the original tree was raised at Ecklinville, four miles from Portaferry, and eighteen from Belfast, by a Scots gardener named Logan, about the beginning of last century." The tree succeeds either in orchard or garden in any form. It is a good market variety.

POTATOES £160 PER LB.—£358,400 PER TON.—Messrs. E. W. King and Co., Coggeshall, Essex, recently paid £160 for 1lb. of the new Potato Eldorado.

The "Daffodil King" on Tour.—No. 13.

(Concluded from page 595, last vol.)

A call was made at Erromanga, one of the islands of the New Hebrides, where they were entertained by the Rev. H. A. Robertson, a Canadian, who had the courage to follow up the civilising of the natives after the missionary Williams and several other pioneers had been murdered and eaten. Here was witnessed an interesting sight. Mr. Robertson had been absent in Australia for some months and returned to his flock. On the steamer casting anchor the mission station was alive with excited natives, waiting on shore to give their pastor a welcome, which was of the heartiest description, flags and sundry decorations being much in evidence. On a neighbouring island Mr. Cheesman got the natives to collect a large number of Zamias, and in various parts of the New Hebrides he collected many Crotons (Codiaums) and other plants of interest. Some of the natives on these islands wear armlets of boars' tusks. These tusks are trained, so to speak, and boars whose tusks are desired are kept tied up and carefully attended to. Some native huts had large numbers hung about, the tusks being considered sacred.

The missionaries in the New Hebrides are in the pay of the London Missionary Society. There are, however, missionaries scattered over the South Sea Islands unconnected with any society, working in their own way and at their own expense. The missionaries on the Banks Islands are in the pay of the Church of England, which has a college on Norfolk Island for the training of native missionaries. The practice in the South Sea Islands is to establish stations where the natives are willing to have teachers, and these are occupied by natives who have been approved for the work, and thus the work of civilisation is pushed forward. The head mission stations are located on the seaboard. The London Missionary Society has a hospital in the New Hebrides, under the care of skilled missionary doctors, where natives and traders are treated. There Mr. Barr saw a fine young fellow being treated, the son of a charming and hospitable German trader, who was named after our good friend, Mr. Peter Veitch, of Exeter.

On the return journey a few hours were again spent on Norfolk Island, and Mr. Cheesman and Mr. Barr made an expedition and discovered several plants of interest and commercially valuable. Arriving back at the starting point Mr. Barr journeyed to Freemantle and Perth, in Western Australia, where he saw Banksias in great numbers and variety. He travelled northward to Coolgardie and Calgourie, both of which are desolate looking places. *Schinus molle*, or Paper Tree, does well thereabouts, and is used for street planting; indeed, it was the only considerable plant he saw in these parts of West Australia. From here he sailed for South Africa. He arrived at Capetown on the 8th of August, 1901, and there remained till the 1st of October, 1902, when martial law had ceased. He then made a six months' tour through Natal, Transvaal, and Orange River Colony, as mentioned in the first chapter of this record.

SOUTH AFRICA.

With the exception of the Vlaktefontein, and around Majuba Hill, the country was so burnt up that few plants were seen. Natal and the Orange River Colony contain the best farming districts, though it must be remembered that Natal is sub-tropical and has within its borders Pineapple and sugar plantations. Ladybrand, in the Orange Colony, has remarkably fertile surroundings. There has been a great deal of tree planting around Johannesburg, these being species of Blue Gums (*Eucalyptus*), which have taken hold and have already developed quite into young forests. Generally speaking, Mr. Barr considered Cape Colony and the Transvaal the healthiest parts of South Africa.

*Stapelia*s were among the many plants collected by Mr. Barr, and at Lobatsi, in Bechuanaland, he discovered a beautiful specimen of *Decabelone Barkleyi*, which he succeeded in sending down to Capetown in perfect condition, with two handsome flowers, these being handed over to Prof. MacOwen to dry and preserve. The largest *Stapelia* collected had flowers 10in in diameter. "But," remarked Mr. Barr, "there is one in Durban Botanic Gardens said to have flowers 15in across." Mr. Chalwin, curator of the Municipal Gardens, Capetown, has about forty specimens of *Stapelia*s.

Our informant had not a great deal to say of the botanic gardens of South Africa. That at Grahamstown "carried off the palm," and Mr. Tidmarsh is the curator. At the Graaf Reinet Garden the superintendent is Mr. C. J. Howlett, while at Port Elizabeth Mr. L. T. Butters is curator. There is here a really fine collection of plants, and every year the gardens are being greatly improved. This means considerable labour, as the soil has largely to be removed and replaced by better material. North End Park is superintended by a brother of Mr. Butters, it being exceptionally smart. There is also a South End Park, well laid out, and a considerable addition has been made to it by the inclusion of a kopje with indigenous scrub, by which it is intended to preserve examples of the native flora.

Stellenbosch (Cape Colony) has always been noted for its superior Grape culture for wine-making. Mr. John X. Merriman

has a fruit farm there, and he was kind enough to send his bailiff to guide Mr. Barr over this farm. On a kopje near Mr. Merri-man's house there are quantities of *Nerine sarniensis*. Reverting to the wine, the best red and white wines tasted by the itinerant during his stay in South Africa were those made by Mr. Merri-man's bailiff. The whole district for miles round was noted for its wines. The vines were grown as bushes, but owing to the attacks of the phylloxera it was found necessary to graft them on to American stocks.

A few miles out from Stellenbosch Mr. Barr spent a day or two on one of the late Mr. Rhodes' farms, and met there Mr. Pickstone. (Incidentally we would mention that Mr. Pickstone visited London a year ago in order to make fuller preparations for the receiving and disposal of Cape fruit products here, and he delivered a highly interesting lecture on fruit culture at the Cape before the Horticultural Club. This lecture was really a history of the Rhodes fruit farms, and of the failures and successes attending the venture. For these reasons it is very valuable, and it is printed in full in the current volume of the Royal Horticultural Society's Journal, Vol. xxviii., Parts 1 and 2, October, 1903.)

Mr. Barr remarked that Mr. Pickstone was satisfied with what he saw, and learnt, and accomplished in London. The Rhodes' fruit farms are seven in number, and variously placed—one at Groot Drakenstein, four at Wellington, and one each at Tulbagh and Stellenbosch. The total acreage is 12,000 to 15,000, and the crops comprise Peaches, Apricots, Plums, Nectarines, Apples, Pears, and Guavas, but the latter were not remarkable.

This, and the concluding paragraph which was accidentally omitted from our notes of Mr. Barr's tour in the United States of America, completes the descriptive series under this head. Our obligations are due to the veteran gentleman for so patiently receiving us on a number of separate evenings, and for having read the proofs of the transcriptions as they were prepared.

THE MAMMOTH CAVES OF KENTUCKY.

The following paragraphs were omitted from the notes dealing with the United States:

From Cincinnati Mr. Barr went to the Mammoth Cave of Kentucky. In this the tide rises and falls. The fish are blind, and it is a long rambling place of considerable interest to the curious. The tide chanced to be out when he paid his visit, no boating was needed, but had it been in, some part of the cave would necessarily have needed the use of a boat. The people of the United States, however, think a great deal of it, and make long journeys to see it. It is a very fatiguing matter to go from one end to the other, and the veteran says he is much inclined to take Douglas Gerald's view of the matter. "Father," says young Douglas, "I have been down a coalpit." "Why did you do so, Douglas?" said the father. "Oh, just to say I had been down a coalpit." "Well, now, could you not just as well have said so without going down?"

The traveller was told Kentucky was all more or less honey-combed with similar caverns. This particular one is the possession of a private individual who has erected a hotel, and has farmed it out. Kentucky is one of the States where the coloured man has his own railway compartments, and whites are not allowed in them, nor blacks allowed in amongst the whites. In the Eastern and Western States there is no distinction in this respect to the colour of the skin in railways. "I should not be surprised," said Mr. Barr, "if some such an arrangement is soon adopted in South Africa, and when this comes it will be better for all concerned, as the white man will not tolerate in South Africa a black in a first or second class carriage, and the guards are often put to their wit's end when a black presents himself with a first or a second class ticket. The third class is the black man's carriage; it does not matter how well dressed the black man is. As the blacks rise in the scale I am quite sure they will demand carriages of their own in three grades; and, on the whole, despite of Exeter Hall, I am sure this will be better for all parties. The educated black man has no wish to force himself into the company of the whites. I had this from the lips of two black clergymen when at Grahamstown, S.A."

Flowers at Christmas.

One of the prettiest little shows I have ever seen at Christmas time is that at Pitt House, Bembridge, I.W., the residence of W. Durnford, Esq. The centre stage of a span-roofed greenhouse is filled with dwarf white Chrysanthemums, variety L. Canning, which forms the groundwork; and among these are arranged plants of Poinsettias trained down to show their head towards the doorway, at a sufficient height to clear the Chrysanthemums. The green foliage and scarlet bracts of the Poinsettias over the white ground are exceedingly effective. The house is flanked on either side with well-flowered plants of double Primulas in variety, Zonal "Geraniums," with the early batch of Tulips and Freesias just coming out, all forming a pretty winter collection and doing great credit to the gardener, Mr. J. Norris.—C. ORCHARD.

Societies.

R.H.S., Drill Hall, January 5th.

On Tuesday last there was a varied exhibition in the body of the Hall. Messrs. Bunyard's collection of 100 dishes of Apples and Pears furnished a rich display, and though most of the varieties were long past their natural season of use, yet so well kept had they been that their texture was firm and fresh. Messrs. Ware had a host of hardy plants; Lady Plowden sent decorative Chrysanthemum blooms; and Messrs. Veitch, Cannell, and Cutbush were also well represented. Orchids were not very numerous.

We took the opportunity to visit the new hall at Vincent Square. The walls are at full height on two of the sides, with the chimneys already placed, and the work is progressing rapidly. The garden at Chiswick, we learn, may be vacated by May, prior to which date the fruit trees and some other stock will be sold. The collections of Pæonies and Irises are being removed from Chiswick to Wisley at the present time.

Fruit Committee.

Mr. Geo. Bunyard (in the chair); with Messrs. Henry Esling, W. Bates, S. Mortimer, Alex. Dean, Ed. Beckett, Horace J. Wright, H. Markham, Geo. Kelf, Owen Thomas, G. Reynolds, F. Q. Lane, J. Willard, Geo. Thomas Miles, G. Norman, A. H. Pearson, and J. Jaques.

Mr. J. Willard, Holly Lodge, Highgate, staged two dishes of Pears—Bergamotte Esperen and Easter Beurré. Sir W. D. Pearson, Bart. (gr., Wm. Wadds), Paddockhurst, Worth, Sussex, staged about 40 fruits of Tomato, Winter Beauty.

Mr. W. Shuter (gr., T. Armstrong), 22, Belsize Grove, Hampstead, obtained a silver Banksian medal for a collection of 16 bunches of Black Hamburgh Grapes and a few Orange fruits. The Grapes were very good. (Silver Banksian medal.)

Messrs. Geo. Bunyard and Co., the Royal Nurseries, Maidstone, showed a collection of 100 dishes of Apples and Pears of excellent appearance. The most seasonable were, perhaps, Striped Beefing, Wagener, May Queen, Newton Wonder, Lord Derby (now almost too ripe), Alfriston, Cox's Pomona, Lane's Prince Albert, Sturmer Pippin, Tower of Glamis, and Bramley's Seedling. The Pears comprised Josephine de Malines, Belle des Arbres, and Marie Benoist. (Silver-gilt Knightian medal.)

Orchid Committee.

Present: Mr. Harry J. Veitch (in the chair); with Messrs. James O'Brien, de B. Crawshay, R. Brooman White, W. Cobb, H. T. Pitt, A. A. McBean, F. W. Ashton, J. W. Odell, E. Hill, W. Boxall, W. H. Young, W. H. White, J. Wilson-Potter, H. Little, J. G. Fowler, Jas. Douglas, N. A. Bilney, H. A. Tracy, and F. Wellesley.

Very few orchids were shown. Messrs. Veitch and Sons had *Cypripedium* x *Leeanum* Albertianum (*C. Spicerianum* x *insigne* Wallacei), a bold, handsome flower; *Laelio-cattleya* x *Coronis* (*C. labiata* x *L. cinnabarina*), very showy; *Laelia* x *Icarius* (*L. cinnabarina* x *L. flava*), a delightfully sweet tea-yellow small flowered hybrid with purple lip; *L.-c.* x *Pallas*, *L.* x *Mrs. M. Gratrix*, and *Sophro-cattleya* x *Saxa* (*Sophonitis grandiflora* x *Cattleya Trianae*), with small pink flowers. (Silver Flora medal.)

Mr. C. J. Lucas (gr., C. Duncan), Warnham Court, staged cut inflorescences of *Calanthes* and *Cypripediums*. The former were very vigorous, long, and rich in colour. (Silver Banksian medal.) Messrs. Hugh Low and Co., Enfield, had *Cyp. insigne* Sanderæ and *C. x Minos* Low's variety (*C. Arthurianum* x *C. Leeanum*). Messrs. Charlesworth and Co., Bradford, staged a choice group, in which was *Cyp. x Dora* Crawshaw (*C. bellatulum* x *C. Charlesworthi maximum*). (Silver Flora medal.)

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. Chas. T. Druery, H. B. May, R. Dean, John Green, Amos Perry, G. Reuthe, C. J. Salter, R. M. Wallace, R. C. Notcutt, H. J. Jones, Chas. E. Shea, E. H. Jenkins, Wm. J. James, Geo. Paul, Edwin Beckett, Wm. Howe, Chas. Dickson, Geo. Gordon, H. J. Cutbush, and James Walker.

Those who are reconstructing the rock gardens, or on the look out for suitable alpine plants, would have found a sufficiently varied choice in Messrs. T. S. Ware's collection. We can



Apple, Ecklinville.

only name a few of the many subjects: *Galax aphylla*, *Hypericum olympicum gracilis*, *Sedum dasphyllum*, *Santolina incana*, *Globularia trichosantha*, *Acæna inermis*, *Veronica loganoides*, *Sarracenia purpurea*, hardy *Cyclamens* in variety, as well as *Sempervivums*, hardy *Opuntias*, *Mesembryanthemum uncinatum*, with glaucous, fleshy stems. (Silver Flora medal.)

Messrs. Cutbush and Son, Highgate, London, N., staged cut blooms of Carnations—Mrs. S. J. Brooks, white; Wm. H. Cutbush, a fringed petalled scarlet crimson, with a dash of pale violet, a sweet and good flower. These two contrast well. Sir Hector McDonald, striped pink and white; and Miss M. Hubbard, yellow. (Silver Banksian medal.)

Messrs. Cannell and Sons, Swanley, sent up a bank of *Coleus thyrsoideus*, *Moschosma riparium*, *Canna Jean Tissot* (scarlet), *Gloire de Lorraine Begonia*, and the pips of China Primulas laid in boxes. These represented 16 varieties, all of which were very pleasing, especially Cannell's Pink, Emperor Improved, H. Cannell, and Cannell's White. (Silver Banksian medal.)

Mr. H. Whateley, The Nurseries, Kenilworth, staged the new late white Chrysanthemum, Harry Whateley, a sport from Niveus. It received an award of merit last year. The petals are bifurcated, giving the blooms a fringed appearance. The new Allam's Yellow, from Mr. Allam (which is a dandelion yellow) was also shown.

Lady Plowden (gr., Mr. W. H. Clarke), The Gardens, Aston Rowant House, via Wallingford, contributed a display of cut Chrysanthemums, which filled the length of one table. It was remarkable as coming from a private garden, and the varieties were *L. Canning*, *W. H. Lincoln*, *François Pilon*, *Mrs. Bantry* (a blush single with spreading petals), *Mrs. H. Weeks* (Jap), *King of Plumes*, *Mrs. H. Neville*, *Nellie Pockett*, *Glorious* (a chestnut crimson Jap), *Golden Star*, *Harold Wells* (sulphury yellow), and one or two other forms. (Silver Flora medal.)

Messrs. James Veitch and Sons, Limited, Chelsea, S.W., staged *Jacobinia chrysostephana*, the plants being in 5in pots and carrying two terminal inflorescences at the apex of the woody green shoots, a foot high; *Peristrophe speciosa*, purple flowers; *Jacobinia coccinea*, *Coleus thyrsoideus*, and *Moschosma riparium* were also on view. (Silver Banksian medal.)

Cyclamens came from Hugh Low and Co., of Bush Hill Park, London, N., the plants being vigorous and well flowered, with plenty of buds to follow.

Mr. John Russell, Richmond, had choice dwarf evergreen shrubs in pots, including *Euonymus Silver Gem*, a broader leaved variety than *E. radicans*. Their *Aucuba maculata*, with yellow foliage and crimson berries, was exceedingly beautiful, and makes a fine decorative pot subject. *Hedera flavesens*, the Golden Ivy, is a gem; and their bushy plants of *Eurya latifolia* were admirable. *Hedera maderiensis variegata* furnishes a white and green leaved Ivy for warm walls. The *Daphne indica rubra*, shown here in a round hamper, were very healthy and vigorous. (Silver Flora medal.)

Messrs. Cutbush staged a choice hardy shrub and plant group, including the Winter Heliotrope (*Petasites fragrans*), *Iris histrix*,

I. histrioides, double white Primula, and well berried plants of *Pernettya mucronata rosea*. (Silver Banksian medal.)

Mr. E. J. Woollard, 107, High Street, Waltham Cross, S.W., showed what he termed a van heater. This is of the ordinary railway carriage type, but of tin, and is not heated with water, but by a patent fuel, which, when once ignited, burns by slow combustion. The heater will be useful for plant vans and other purposes. "Beetlecuter" was also on view, as well as "Floral-Aid" and Pattisson's horse lawn-boots.

Certificates and Awards.

Bulbophyllum micropetalum (Roy. Bot. Gds., Dublin). — The sepals are small ($\frac{1}{2}$ in.) and thick, and form a triangle. The flowers are dark purplish and green, in short racemes. Bot. Cert.

Epidendrum Cooperianum (Roy. Bot. Gds., Dublin). — This is a Brazilian species, with clustered racemose inflorescences. The lip expands disc-like at the extremity of the protruding column, and is rose-purple in colour. The insignificant segments are brownish. Bot. Cert.

Maxillaria macrura (Roy. Bot. Gds., Dublin). — The petals and sepals are $\frac{1}{2}$ in. broad, and about 4 in. long. The acute, shield-shaped lip is yellow, with purple lines. Bot. Cert.

Maxillaria cucullata (Roy. Bot. Gds., Dublin). — The sepals are an inch long, and cinnamon coloured. The petals are smaller, and the lip is nearly black. Bot. Cert.

Moschosma riparium (J. Veitch and Sons, Ltd., and Cannell and Sons). — This plant has "got about" a good deal since its introduction some years ago to Kew. Messrs. Veitch were first to bring it before gardeners, who speedily saw in it a very useful winter plant. It is a Labiate with somewhat Nettle-like leaves, the edges being crenate, and the dark woody stems run out into graceful inflorescences of dull whitish flowers, having a general resemblance to those of *Astilbe japonica*. The flowers fall in foggy weather, but it is a good plant for a warm greenhouse. A.M.

Bristol: Rock Plants.

The Bristol and District Gardeners' Mutual Improvement Association held its usual meeting at St. John's Rooms on Thursday, December 31, ult., Mr. W. E. Budgett presiding, supported by Mr. W. A. Greenslade, both gentlemen taking a deep interest in the work of the Society. The formal business of the evening having been finished, the chairman introduced Mr. Clarke, representing the Bath Association, and invited him to give his lecture on Rock Plants. The lecturer carefully explained the formation of the rock garden in the minutest details, and gave a list of the plants most suited for planting. He strongly advised a careful study of Nature before attempting to imitate. Several members of the Bath brethren accompanied Mr. Clarke, and they, too, received a warm welcome from their Bristol friends. Prizes for 2 pots of Roman Hyacinths were awarded to 1st Mr. Jones; 2nd, Mr. George White (gr. Mr. Price). A certificate of merit went to Mr. F. C. J. Fisher (gr. Mr. Shelton) for a plant of *Dendrobium formosum*.

Hull: Potting, Soils, and Watering.

On Tuesday, December 16, Mr. G. P. Leadbetter occupying the chair, Mr. Gaut, of the Agricultural College, Leeds, delivered a lecture to the members of the Hull and District Horticultural on the subject of "Potting Plants, Soils, and Watering." At the outset the lecturer explained that his intention was to speak of the general principles underlying the practice, and in this he admirably succeeded. Proceeding, he gave a graphic account of the three principal constituents of potting composts, viz., peat, loam, and leaf soil. Speaking of the difference between "upland" and "bog" peat, he discountenanced the use of the latter for potting purposes, informing his hearers that it would soon render the whole compost sour.

Loam, the ideal gardening soil, was advised to be cut from an old pasture (preferably fed by sheep and deer), to a depth not exceeding 3 in., and in the autumn. Where wireworm was prevalent it would be better to delay the cutting until these pests were driven by frost into the lower layers of soil. Leaf soil was said to be rich in nitrogen, but deficient in potash, but was doubly valuable on account of its absorbent and moisture-retaining properties. Mr. Gaut next emphasised the importance of aëration, moisture, and plant food in potting soils, and dwelt in detail under each of the three heads.

Briefly referring to the manner of crocking, the able speaker passed to the watering, in which he contended the chief requisites were observation and judgment on the part of the grower. The general principles governing the practice were lucidly explained, and after endeavouring to describe when water should be supplied to a plant, the lecturer brought his excellent treatise to a close. The discussion which followed was replete with instruction, and both speakers and listeners were no doubt able to say: "Greatly instructed, I shall hence depart, having my fill of knowledge." A very hearty vote of thanks was accorded to Mr. Gaut.

Beckenham Horticultural.

On Friday, January 1, Mr. John Gregory, of Croydon, gave a very entertaining and instructive lecture on "Wall and Water Gardening," illustrated by lantern slides, all of which were from the lecturer's own photographs. A series of pictures were first thrown on the screen showing how effectively Mr. Hudson, of Gunnersbury, had dealt with an unsightly portion of the garden by erecting a wall imitating old ruins, and planting the same with suitable plants. Other pictures of Gunnersbury showed the beautiful Water Lilies for which the garden is famous, the lecturer remarking the good work in hybridising the Water Lily by Mr. Hudson. As the pictures were placed on the screen Mr. Gregory gave necessary explanation, and also gave practical information as to construction, planting, plants to use, &c. A few questions were put to the lecturer, who gave the desired information, after which the audience tendered him a hearty appreciation of his lecture. At a previous meeting Mr. Richard Martin, of Messrs. T. S. Ware, Feltham, gave a lecture on herbaceous plants. It is almost needless to say that the representative of "Ware's" would be an expert, and members and friends were highly pleased with Mr. Martin, and tendered him hearty applause.—T. C.

Ipswich and East of England Horticultural.

The annual meeting of the above Society was held in the Town Hall on December 29, when Mr. A. Ransom presided over a good attendance of members, who took a lively interest in the proceedings. A very satisfactory report and balance-sheet were presented by the committee. Starting the year with an adverse balance, and with the aid of a guarantee fund, the outlook was anything but brilliant; but by considerable energy on the part of the committee, and good fortune in regard to the weather, the Society starts the year 1904 with a favourable balance of £36 13s. 7d. This is in a great measure due to the excellent gate at the Summer Show—£145 7s. 0d., exceeding any previous takings for eighteen years. At the Chrysanthemum Show £118 10s. 9d. was taken, a slight deficiency compared with previous years.

The Society is pursuing a go-ahead policy for the coming year, having taken over the East Anglian Daffodil Show, which has for the past three years been successfully carried on under the joint management of Mr. John Andrews (the well-known secretary of the Woodbridge Society) and Mr. A. E. Stubbs, of the Ichtheimic Guano Company. The Daffodil Show will be held on April 13; July 6 has been provisionally fixed as the date of the Summer Show, and the Chrysanthemum Show will be held on November 8 and 9.—E. C.

Obituary.

Mr. J. C. Fidler.

We record with deep regret the death of Mr. J. C. Fidler, head of the firm of Messrs. Fidler and Sons, seed and Potato merchants, Friar Street, Reading, which occurred at his residence, Warrenside, Caversham, on the 26th ult. Mr. Fidler visited the Agricultural Hall, Islington, during the Smithfield Show, when he appeared in his usual good health; but, upon returning home, it was found that he had contracted a severe chill, which developed into pneumonia.

The son of a market gardener who established locally a business of modest proportions in 1856, the late Mr. Fidler was a native of Reading, and spent the whole of his commercial life in the town, first of all in association with market gardening and fruit growing, afterwards forming the foundation of the important seed business now flourishing in Friar Street. The prominent position occupied by the firm as seed Potato specialists is entirely due to his foresight, initiative, and energy. In Reading itself he exerted himself to assist in efforts for the town's welfare. Various building projects he began and completed, such as the County Court Offices, the Arcade, and Queen Victoria Street, which constitute features of prominence in Reading. He gave stimulus to electricity as a means for illumination, and was a director of the Reading Electric Light Company. Genial of disposition and tireless of industry, Mr. Fidler found recreation in efforts on behalf of more than one sphere of beneficence. The deceased gentleman leaves a widow and ten children; two of his sons, Messrs. J. C. and W. T. Fidler, have been associated with him for some time, and will continue the business. The funeral took place last Wednesday, the 30th ult., at Mapledurham, Oxon.

Those whose pursuit lies in horticulture will regret to hear that its ranks have been depleted by the decease of Mr. W. Horne, senior, of the firm of Messrs. W. Horne and Sons, of Rochester, Kent, which took place on Saturday, January 2, at the age of fifty-four years.

A Water Garden.

Of late years considerable attention has been paid to beautifying the waterside with plants conspicuous for their flowers or for their foliage, and many charming effects (observes "Gardening Illustrated") have been attained where the water margins have been laid out with thoughtful care and taste. Nothing is so good for floating on the water as Marliac's hardy Water Lilies. Of these there are numerous varieties now in commerce, of which the three most distinct are *Nymphaea Marliacea albida* (the finest white), *N. M. chromatella* (a charming pale yellow), and *N. M. gloriosa* (rich carmine-red). There are many others of intermediate tints which are pretty, and the smaller flowered forms of *N. Laydekeri* are attractive. The Water Crowfoot (*Ranunculus floribundus*), *Villarsia nymphaeoides* (the yellow Buckbean), and *Pontederia cordata*, with its blue blooms, are all pretty water plants. For the shallow margin of pond or lake, *Arum Lilies* (*Richardia*) form a most exquisite finish; but, although these are sometimes grown in the open as far north as Scotland, it is not wise to recommend them except for the south-west of Ireland. In a lake in Cornwall they grow in their thousands, and present a delightful picture in the early days of June when in full bloom. The Great Spearwort (*Ranunculus Lingua*) is a handsome plant for growing in shallow water, and produces a quantity of large yellow flowers.

For damp banks running down to the water's edge numerous flowering plants are available. In such a position *Primula japonica* grows rampantly. The Japanese *Iris laevigata* or *Kämpferi* also succeeds well by the waterside, its large, widespread flowers being very handsome, as does the smaller flowered *I. sibirica*, while the yellow Water Flag of our meadows (*I. pseud-acorus*) and its variegated form, with their noble sword leaves, are decorative even when out of flower. Day Lilies, Solomon's Seal, Globe-flowers (*Trollius*), the Summer Snowflake (*Leucjum aestivum*), and *Spiraeas* in variety may all be naturalised around pond margins, and such wild flowers as the Marsh Marigold, yellow and purple Loosestrife (*Lysimachia* and *Lythrum*), and Willow Herb (*Epilobium*) grow naturally in a like site, while *Mimulus* when established often spreads freely. For fine form we have the Gunneras, *G. manicata* producing leaves 10ft in diameter, Rhubarbs, the Butter Bur (*Petasites*), the Water Dock (*Rumex*), and many graceful Reeds, such as the Giant Reed (*Arundo Donax*), the Bulrush (*Typha*), the Flowering Rush (*Butomus*), Sweet Sedge (*Acorus Calamus*), with *Phragmites*, *Scirpus*, and *Carex*. Golden and Cardinal Willows should not be forgotten, as their bright colours are indispensable for winter effect, and the Royal Fern (*Osmunda*) flourishes nowhere so well as by the waterside. In planting lake margins, care should be taken not to overcrowd the verge. Water hemmed in by a barrier of tall and thick-growing subjects is worse than if its circumference is devoid of plants. Things should be naturally grouped, with open spaces here and there, so that the water may be approached from various points and the effect studied without hindrance from intervening vegetation.

Trade Catalogues Received.

- Wm. Clibran and Son, 10 and 12, Market Street, Manchester.—*Seeds*.
 W. Cutbush and Son, Highgate Nurseries, London, N.—1, *Flower, Vegetable, and Farm Seeds*; 2, *Trees and Shrubs*; 3, *Hardy Herbaceous, Alpine, and Bulbous Plants*; 4, *Roses*; 5, *Fruit Trees*.
 E. P. Dixon and Sons, Hull.—*Seeds*.
 W. Drummond and Sons, Ltd., 57 and 58, Dawson Street, Dublin.—*Seeds*.
 Fisher, Son and Sibray, Ltd., 4, Market Street, Sheffield.—*Seeds*.
 John Forbes, Buccleuch Nurseries, Hawick, N.B.—*Seeds*.
 W. Laing, Sutton, Surrey.—*Farm and Garden Seeds*.
 T. Methven and Sons, 15, Princes Street, Edinburgh.—*Seeds*.
 W. Paul and Son, Waltham Cross, Herts.—*Seeds*.
 J. R. Pearson and Sons, Chilwell Nurseries, Lowdham, Notts.—*Seeds*.
 J. Spink, Summit Road, Nursery, Walthamstow, N.E.—*Chrysanthemums*.
 Toogood and Sons, Southampton.—*Seeds*.
 Albert F. Upstone, 35, Church Street, and 1, Market Street, Rotherham, Yorks.—*Seeds*.
 R. Veitch and Son, 54, High Street, Exeter.—*Seeds, Implements, Sundries*.

Miscellaneous Note.—Cadbury's Cocoa.

Gardeners in bothies are extensive users of the various cocoa preparations, because of their facility in being made utilisable, and also because of their nutritious qualities. In this place we desire to name and recommend Cadbury's Cocoa as a pure, wholesome, and refreshing drink. As a sustaining and warming draught it is perhaps used in every bothy, the young men finding it the acme of perfection for their purposes at all times, but particularly just before "turning out" in these cold, damp, wintry mornings. As with the young gardeners, so with many of the other employés on estates, the facility of preparing this cocoa in a utilisable form causes it generally to be in demand.

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

Principles of Propriety.

In answer to the few "modest" remarks made by "An English Foreman" (page 544, last vol.) on my recent contribution, I beg space for a reply. "Nine-tenths of the young men in England spend too much time in public-houses and pleasure seeking." Your correspondent considers this an offence to young Englishmen. I ask: Are there no other young men beside English in England? Some of my own countrymen are quite as bad, and indeed, considering the very high opinion held of Scotsmen in general, it looks worse for them than for young Englishmen, who rejoice in the good ale of "Old England." Judging by the tone of your correspondent's letter, he seems to have no small amount of antipathy for Scotsmen. I should like to assure him that my feelings towards Englishmen are good and hearty. Nevertheless, if "English Foreman" desires to prove my assertion, let him get further afield into "pastures new," a little further away, and perhaps by the time he has roamed over Scotland and England, I trust he will acknowledge this painful fact, that "nine-tenths of the young men in England spend too much time in public-houses and pleasure seeking." Furthermore, allow me to say that this statement has been, and is now, acknowledged by his own countrymen of no mean position, with regret.

I offer my congratulations to an "English Foreman" if he has the good fortune to belong to the remaining tenth of young men who take the profession seriously. As to the latter part of "English Foreman's" letter, it is really amusing. If I take a snack of bread and cheese in the potting shed must the others, who prefer a smoke, come running from one end of the place to the other? He might have given me more credit. I daresay if my letter to the *Journal* was forwarded to "English Foreman," he would probably find a number of "t's" uncrossed and "i's" undotted.

He asks me to give him a character of Scotsmen; it would be certainly out of place to eulogise my own countrymen in this discussion, but for the benefit of readers I trust you will find space for answers to this question: "Why are Scots gardeners preferred to English?"—"Scot," Berkshire.

The Gardeners of the Future.

Just a word about the gardeners of the future, the young men or journeymen of to-day. I hope they will see and note the signs of the times and get a sound training in the cultivation of hardy plants, alpine, aquatic, flowering or evergreen shrubs and trees. Never were good kitchen gardeners and fruit and vegetable growers more in request than they are to-day. Our present day young gardeners and probationers have a strange yearning to be "under glass," and so they often obtain an unequal or one-sided training. These men often fail when they obtain all-round situations where outdoor gardening is thought to be as important as or even more so than that in the glass houses. Of the many young men I have had through my hands I have usually found the outdoor students more successful when they left me and went to other places than were those who preferred to potter about under a glass roof. Young men nowadays have advantages quite out of the reach of men who started twenty or thirty years ago. There are books and illustrated papers, lectures, classes, and technical schools or institutes in all large towns and in many of the villages throughout the country. Knowledge is in these days obtainable by all, and knowledge is not only power, but profit and pleasure as well.

Most good employers and their gardeners afford facilities for self-instruction to their men, and this is best done, as I believe, without any coddling or over-persuasion. It is not so much what you give as what you enable a man to earn or win for himself—it is not what is taught, but what men are led to learn for themselves—that does them and the nation at large the most good. Above all, young men should be told and shown early in their career that it is not mere knowledge as knowledge, but the practical application of good lessons well learned, that is really serviceable in the world's progress. The great thing for young gardeners to do is to learn the principles of horticultural science or the basal rules of the craft first, as they may do readily in Macmillan's primers on horticulture, geology, botany, logic, political economy, and chemistry. Drawing to scale and a moderate ability in freehand sketching are one of the best aids a gardener can possess in his calling. A rude pencil or pen diagram with measurements added in figures is better than either verbal or written description, and will save time, trouble, misapprehension, and labour in many ways. Finally, young gardeners must learn all the constants or set rules of garden craft, even though as master gardeners they may modify or even now and then break them.—F. W. BURBIDGE (in R.H.S. Journal).



Fruit Forcing.

CHERRY HOUSE.—The trees in the house usually started at the end of the old or beginning of the new year are fairly on the move, when the day temperature, in order to ensure steady progress, must be kept at 50deg to 55deg. If the days are bright, air should be admitted, but only to the extent of keeping the temperature from rising above 65deg, maintaining it from sun heat at 60deg to 65deg, admitting a little air at 50deg, more at 55deg, above which a free circulation of air must be allowed, and when the temperature declines to 55deg close the house for the day. The night temperature should still be kept at 40deg to 45deg artificially. Syringe the trees in the morning and early afternoon if the weather is bright, but if the day be dull it will suffice if the borders and other surfaces are damped whenever they become dry. Examine the borders, supply water if necessary, moistening them thoroughly, the water not being less or much higher in temperature than that of the house. Trees in pots—the most desirable mode of forcing Cherries—must be well supplied with water, repeating the applications as necessary to ensure thorough moisture in the soil without making it sodden and sour.

CUCUMBERS.—Where winter Cucumbers are not grown, plants for the early supply of fruit should now be prepared, sowing the seeds singly in 3in pots half filled with soil, so as to leave space for top-dressing when required. Plunge the pots in a brisk bottom heat near the glass, or where this is not forthcoming place on shelves and cover with a pane of glass, removing as soon as the seedlings are just clear of soil. The house must have a temperature of 65deg to 75deg by artificial means. These plants will be sufficiently advanced in about a month for planting in houses, pits, or frames, and will supply fruit during the month of April onwards. Where convenience for raising the plants for planting in frames does not exist, seed should be sown in pots placed in a hotbed as advised under Melons.

IN THE CASE OF WINTER CUCUMBERS care to husband the sun heat is important, giving a little air if the weather be mild and calm in the early part of the day, and close early in the afternoon, or shortly after midday, damping the house at the same time. Sprinkle the floors on fine mornings, and syringe the plants lightly, thus discountenancing red spider, and to some extent holding the pest in check. Supply weak liquid manure to plants in free growth, and to those not showing signs of growing freely sprinkle a little superphosphate and soot on the soil, and use tepid water only until the growth becomes free. To encourage surface roots a top-dressing should be given of turfy loam from the size of a nut to an egg, intermixed with a fourth of sweetened horse droppings, having it previously warmed to the temperature of the house, and sprinkle on this a handful per square yard of some approved fertiliser. Maintain the night temperature at 65deg, a few degrees less in severe and a few more in mild weather, 70deg to 75deg by day and 85deg to 90deg with sun heat, keeping the bottom heat steady between 80deg minimum and 90deg maximum.

MELONS.—To have ripe fruit in April or early in May, seeds must now be sown singly in 3in pots, leaving room in the pots for top-dressing. Plunge in a bottom heat of 80deg to 90deg near the glass, or cover the pots with bits of glass and remove when the plants appear, thus plants can be raised on shelves in any structure having a temperature of 65deg to 75deg by artificial means. As soon as the plants have unfolded the first leaves, top-dress the soil, keep them as near the glass as possible without touching, so as to prevent a weakly growth.

HOTBEDS.—In small or moderate sized establishments, where there are no light, well-heated structures for raising Cucumber and Melon plants from seed, a hotbed is very important. The materials may consist of two parts of leaves and one part of stable litter, well mixed and thrown into a heap, damping if necessary, and turning over twice, the first time when the materials are warmed through, and again in the course of a week. This sweetens the material, rendering it fit for making up. Choose a dry site, and in front of a wall or hedge to the north, and if similar but low on the east and west sides the force of winds will be much modified. Make the bed 6in larger than the frame every way, but as it is difficult to carry up the sides and ends quite perpendicular, let the base be 1ft greater than the box every way, building the bed so that it will have about 6in to spare all round the

frame. Put the materials together as evenly as practicable, and beat them down as the work proceeds, making the bed about one-third higher than the intended height, the bed at this season needing to be about 5ft high at the back and 4ft in the front. In a week the bed will have settled down, then level the surface, return the frame, and put in sufficient fermenting material to make the back of the frame correspond in depth with the front, and over this 4in to 6in of leaves or other light material for plunging the pots in that contain the seeds. I find it an excellent practice, though very old, to form a cavity inside the frame in order to allow the plants the benefit of top heat from the linings after that from the bed is declining. Due preparation must be made of fermenting material for linings and hotbeds for plants as they become fit for planting in the fruiting beds.

PINES.—When it is found that plants under the ordinary régime will not fruit sufficiently early for particular purpose, a selection must be made from the successional plants, choosing those which appear likely to show fruit quickly, these being readily distinguished by the high centres or hearts and stoutness at the upper part of the plant stem, and bringing them together into a light house, where they can have the benefit of more heat. Plunge the pots in a bed standing regularly at a temperature of 90deg to 95deg at the base of the pots. If the plants are in the least dry, water them with liquid manure copiously at the same temperature as the bed. Maintain the top heat at 65deg to 70deg at night, with 5deg more from fire heat by day, advancing to 85deg to 90deg from sun heat. Keep the atmosphere about the plants in a genial and invigorating condition by damping the paths and sides of the bed as they become dry, and lightly syringing as may be necessary.

PEACHES AND NECTARINES—EARLIEST FORCED HOUSE.—The trees started in December will require a night temperature of 50deg to 55deg, the latter only when the nights are mild, and as a maximum by day when the sky is overcast, 65deg by day from sun heat, and if the air be mild a few more degrees may be allowed. Cease syringing the trees directly the anthers show clear of the corollas, but damp the floor and border on bright days in the morning and afternoon. Lose no opportunity of ventilating freely where external conditions are favourable, and when the pollen is sufficiently advanced choose the warmest and driest part of the day for aiding its distribution by shaking the trellis or tree, or taking a camel's-hair brush, applying the pollen to the stigmas. If there is a deficiency of pollen of any variety, some should be taken from those that afford it freely and applied to the pistils; a rabbit tail mounted on a small stick holds the pollen well, and allows the cross-fertilisation to be readily effected. Inside borders must not be neglected for water; protect outside ones with leaves and litter, just sufficient covering to exclude frost, but not so thick as to perceptibly ferment.

SECOND EARLY HOUSE.—This, the first in most establishments, and planted with such varieties as Alexander and Early Louise Peaches, Cardinal and Early Rivers Nectarines, must be started to give fruit early in May; or if such varieties as Hale's Early, Dr. Hogg, Stirling Castle, Royal George, Grosse Mignonne, or Dymond Peaches. Lord Napier, Stanwick Elruge, Rivers' Orange or Humboldt Nectarines, to give ripe fruit at the end of May forward, must be started at once. Damp the trees in the morning and early afternoon, turning on the heat in the morning, so as to raise and maintain through the day a temperature of 50deg, taking care that it does not exceed that heat by artificial means, allowing the temperature to rise to 65deg with sun heat, and free ventilation from 50deg. When the buds swell maintain a night temperature of 40deg to 45deg, up to then merely excluding frost.—G. A., St. Albans, Herts.

Kitchen Garden.

CAULIFLOWERS.—A little Cauliflower seed should now be sown to follow plants in frames. It is unwise to raise these plants in a high temperature. Sow the seed very thinly in a shallow box, and place this on a shelf near the roof glass in a temperature not exceeding 45deg at night. The seeds soon germinate, and will soon become drawn if not attended to. One of the chief secrets in the successful culture of early Cauliflowers is to avoid a check of any kind in the early stages of the growth. Two reliable kinds for early use are Veitch's Forcing and a good strain of Snowball.

MATERIAL FOR MAKING HOTBEDS should be collected and formed into a heap to ferment. Three loads of Beech and Oak leaves to one of long stable manure will make a lasting bed. It is a mistake to use more than one-third of horse manure; the heating is too violent. As soon as the heap begins to heat freely it should be turned and thoroughly shaken to pieces and allowed to lie hollow, to allow the rank gases to escape. In the course of eight or ten days it should be turned again. If, however, it is found to be in fairly good condition, viz., not heating too violently, it may be made up for the frames to be at once placed on it. The bed should be

trodden firmly as each layer is placed on it. It is very important that the beds are made in an uniform manner; in order that the heat be also uniform throughout, give the bed a sharp angle to south.

FORCING—ASPARAGUS.—Asparagus may be successfully forced on these beds. It will be advisable to ascertain the condition of the bed before the roots are placed in. Four inches of soil should be placed in the frame, and on this the roots should be regularly and evenly laid out, covering them with another 4in of light soil. It will be wise to watch the frame carefully for some days, to correct any sudden fluctuation in the temperature which may arise. Three and four-year-old roots are the best for this purpose.

EARLY LETTUCES.—A small quantity of Cabbage Lettuce should now be sown. It should be treated similar to Cauliflower. It should not be allowed to become drawn. Keep it as sturdy as possible by staging near the glass in a cool house or frame where the frost can be excluded. Watering should be carefully done, as these plants are liable to damp off. The old Tom Thumb is still one of the best for this purpose.

RHUBARB AND SEAKALE.—More roots of these should be covered to keep a supply going. The material should be prepared as for hotbeds, and should be placed carefully round the pots and gently trodden down. See that light is excluded from the Seakale, or the blanching will be imperfect, which will spoil its appearance and cause complaint from the kitchen. More may also be taken to the forcing house, keeping the Seakale quite in the dark.—A. T., Cirencester.

Flower Garden.

HERBACEOUS BORDERS.—Many clumps of perennial plants of a strong growing character may be lifted, divided, and replanted now. Take the opportunity to dig the ground well over, mixing in some well decomposed manure or leaf soil. Other plants not requiring to be reduced in size may be trimmed, cleaned, and forked between, making the whole border fresh and neat. The only drawback to digging now is the presence of bulbs among the plants in a perennial border, so care must be used if the position of the bulbs cannot be located. If more desirable, leave the forking or digging until later, when Snowdrops, Crocuses, Hyacinths and Daffodils, Scillas, &c., are appearing above the ground.

ROSES.—Dwarf Roses for beds and borders may still be planted, choosing a favourable time when the soil works well. Mulch the ground afterwards with a layer of littersy manure. Should the ground have to be prepared before planting, let it be done thoroughly, working it to a liberal depth, incorporating some decomposed manure freely with it, also fresh soil if this is obtainable. In planting, the roots should be spread out, and parts that are injured cut cleanly back. Long shoots may be partially shortened, but close pruning must not be done at present. Wall Roses should have old wood cut out. Long shoots should be nailed in to take their place, shortening them to ripe parts.

SHRUBS AND TREES.—The pruning of all the ordinary deciduous and evergreen shrubs may be effected now, also the branches of deciduous trees shortened or thinned out where necessary. The leaves beneath may be raked off or dug in where this can be done without disturbing the roots of the permanent occupants. In pruning shrubs it is best not to cut them in too formally, especially evergreens. Some will require little or no pruning. Transplanting where required may be done if the specimens can be lifted with balls of soil and roots. Deciduous trees and shrubs may, as a rule, be successfully planted now. Prune damaged roots, and spread the fibres they have well out in the soil.

GARDEN PATHS.—This is a suitable season to repair garden paths which have become worn or washed into an uneven condition by rain. Should there be plenty of surface gravel this may be turned over, the roughest stones raked off, then level and roll. Catch pits ought to be emptied of the material which has washed into them, and the drains made clear. Paths which require fresh gravel must have the old surface broken up and re-formed, then spread on a liberal thickness of gravel, 2in or 3in sufficing in most cases where there is already a suitable foundation. Remove when raking level any large, rough pebbles, and roll with a heavy roller.—E. D. S., Gravesend.

Dyeing Lycopodium.

For dyeing dry or faded Lycopodium a mineral green is used, costing about 12s. 6d. per pound. One-half teaspoonful of the dye to a wash boiler about three-fourths full of hot water, thoroughly dissolved, makes the solution in which the green should be dipped. After dipping fifteen or twenty bunches of the green add more water and the same proportion of the dye. Spread the bunches in a warm place to dry.

The Weather.

Rainfall for 1903 at Alton.

The rainfall as registered here for the past record wet year has been exceptionally heavy. Taken every morning at nine a.m., the record is:—Jan., 2.94in; Feb., 2.08in; March, 4.55in; April, 2.99in; May, 3.39in; June, 2.96in; July, 4.35in; Aug., 4.49in; Sept., 3.14in; Oct., 11.37in; Nov., 2.33in; Dec., 4.70in; total for year, 49.29in.—WILMOT H. YATES, Rotherfield Park Gardens, Alton, Hants.

Rainfall for Year 1903 in Glasgow District.

The reports of the rainfall for last year in this neighbourhood are very interesting, and will give an idea to those living in more favoured districts what we poor mortals have to suffer. When it will be seen that out of 365 days 185 were wet, during which time 55.52in of rain fell, I think most people will at least extend to us their sympathy. This is equal to half of the year being more or less wet. The average rainfall since 1868 has been something like 36in, except 1872, which is the wettest on record, with a fall of 56.18in. There were only two whole weeks of sunshine during the year, a state of matters which goes to show how persistently Nature gave vent to her tears. Of all the months of the year, October gives the highest rainfall, being 8.29in, and had only two dry days. Out of August, September, October, and November, there were only 33 dry days—a state of matters, perhaps, unprecedented in the memory of the oldest living man or woman.—D. C., Hamilton.

Sussex Weather.

The total rainfall for the past month at Abbots Leigh, Hayward's Heath, was 2.43in, being 0.35in below the average. The heaviest fall was 0.52in, on the 7th; rain fell on twelve days. The maximum temperature was 51deg, on the 9th; the minimum, 20deg, on the 3rd. Mean maximum, 41.28deg; mean minimum, 33.22deg; mean temperature, 37.25deg, which is 2.42 below the average. The total rainfall for the past year has exceeded all others since the beginning of the record in 1880. That year gave us the next heaviest amount, viz., 36.15in. The average for the twenty years, 1880-1900, was 29.75in; thus we have an excess over the average of 10.17in for the year. In an account of the rainfall of 1877, by the late G. J. Symons, of Camden Square, and published in the *Journal of Horticulture* in January, 1878, I find that in that year Mr. Wm. Comber, of Bulcombe Place—three miles north of Hayward's Heath—registered 40.90in of rain. I have no record of the year 1879, which was a very wet summer, and has often been referred to by farmers and gardeners in this district as the "worst year" they can remember. Can anyone say if it was worse than 1877?—R. I.

Temple House Gardens, Great Marlow, Bucks.

The register of rainfall here for December, 1903, was 2.57in., and for December, 1902, 1.40in. The max. temperature for December, 1903, was 50deg on the 9th and 22nd. and the min. 23deg on the 31st. The max. for December, 1902, was 57deg on the 17th of the month, and the min. 21deg on the 6th. I herewith enclose register of rainfall for the year 1903; our yearly average is 27.50in.

RAINFALL IN 1903 AT TEMPLE HOUSE GARDENS, BUCKS.

Rain gauge: Diameter of funnel, 5in.; height of top, above ground 1ft., above sea level 105.9ft.

Month.	Total Depth.	Greatest Fall in 24 Hours.		Number of Days on which 0.01 or more fell.
	Inches.	Depth.	Date.	
January ..	2.97	0.74	4th	23
February ..	1.00	0.17	23rd & 27th	14
March	3.57	0.51	6th & 23rd	21
April	2.06	0.60	28th	16
May	3.91	0.54	30th	18
June	6.59	1.73	10th	10
July	4.91	1.64	17th	18
August	4.00	1.17	24th	21
September ..	2.49	0.54	10th	16
October ..	8.83	1.26	27th	29
November ..	1.93	1.11	27th	16
December ..	2.57	0.75	10th	15
Total	44.86			217

—GEORGE GROVES.

"My Garden Diary."

Messrs. Sutton and Sons have once again issued their little booklet, which indeed gardeners have come to expect at the beginning of each year. It is not a book for the pocket, but for the desk or for reference in the potting shed, where it is generally hung. Each month has its cultural reminders and a blank space for memoranda. The remedies for insect pests, given at the back, will be generally appreciated; as will be the lists of annuals.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

ANGLE OF ELEVATION FOR PLANT HOUSES (Alpha).—In structures where little fire heat is employed, as in green-houses, an elevation of 40deg is as good as could be adopted, and even for stoves the angle should not exceed 45deg; though in our experience we find an angle of 40deg the best for the distribution of the heat as equably as possible.

COWDUNG FOR MIXING WITH HORSE DROPPINGS FOR GROWING MUSHROOMS (Alpha).—The cow manure should be used in the proportion of one part to two parts of horse droppings. Yes; cow droppings should be used, and they should be dried before use and mixed with the horse droppings, which should be recently collected and freed from long straw, and duly sweetened.

WHAT IS THE BEST PAINT FOR PAINTING HOT-WATER PIPES AFTER CLEANING HOUSE WHICH CONTAINS PLANTS? (R. A. C.).—The best and only safe paint to use is lamp-black, formed into a thin paint with linseed oil. If this be applied when the pipes are warm, or if heated shortly after application, the pipes will soon dry and give off all the fumes that will of consequence arise, a little air being given so as to allow any fumes likely to be injurious to tender foliage plants or ferns, continuing this until there is no perceptible smell from the pipes. This practice we have followed for many years in both plant and fruit houses.

GENERAL HINTS ON THE MAKING OF A ROCKERY (J. B.).—The construction of a rockery in a natural manner requires considerable experience, combined with a knowledge of the various requirements of the plants. The stone suitable for the purpose is sandstone, tufa, and limestone. Sometimes clinkers, burrs, and even large pieces of coke dipped in cement are used. These, however, are but poor substitutes for stone. The plan of construction in all cases must depend largely upon the space at command, and also for the plants to be grown. For ferns the effect is much finer when below than above the ground level. For flowering plants the situation must be open, sunny, and the elevation above ground. The walks should undulate and wind to and fro; they should be made of stone or concrete, with rugged steps here and there. Bold projections may be arranged at intervals, and thus cause a change of contour. In building the stone together large pockets should be provided to hold a good supply of compost, and these should be so arranged that they may be connected with the bulk of soil on which the body of the rock is built.

The stone should be arranged in as natural a manner as possible; the receptacles for the plants recede as they rise, and the rock so fixed that the light may get to the lowest part without obstruction. Arches, so frequently made, are not natural, and most rockeries look better without them. In the case of level ground mounds of earth may be formed and stone built up in the form of miniature hills, with intervening valleys, or in the form of a glen or ravine for ferns, excavated to a greater or less depth. In either case the paths should undulate, wind in and out, and in appearance resemble a wild rocky pathway.

In whatever form the rockery is constructed drainage should be provided for the escape of superfluous moisture. Water will drain to the lowest part, and there provision must be made for its disposal. In commencing the construction the paths should first be planned, and from these the rockwork should rise in an irregular mass. The general outline should take the form of a series of terraces, rising tier above tier, receding farther and farther from the paths. Bold stones projecting here and there give character to rockwork and prevent the eye seeing too far or too much from any one point.

Every stone must be made perfectly secure, so that rain, frost, and other influences may not cause injury to the erection. When the building is complete some good compost should be put into the pockets in which to plant the plants, this compost resting on the bulk of soil constituting the foundation of the rockwork. A rockery properly constructed consists of elevations, depressions, pockets or recesses, ledges, niches, crevices, and cosy corners for the several plants, as befits the respective species or varieties.

BULB FOR NAME (G. W. K.).—Probably a Jonquil; send a flower later on.

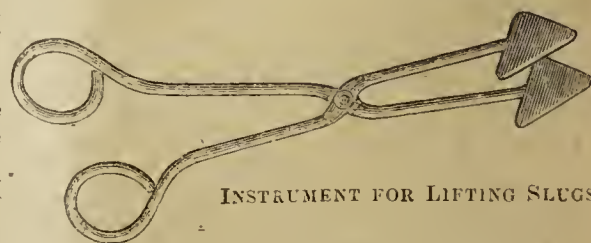
GEOMETRIC BEDS (Working Gardener).—Apply to Messrs. Cannell and Messrs. Toogood. We will also furnish hints.

BOOKS ON MARKET GARDENING (Constant Reader).—"Market and Kitchen Gardening (Show)," 3s. 3d., from 8, St. Mary-at-Hill, London. "Market Gardening" (Cuthill), 1s. 2d., same address; "Market Gardening" ("Salisbury" Series), also same address, 8d.

DWARF SHRUBS, BUSHY IN HABIT AND UNDER 3FT. FOR SMALL GARDENS (A. L.).—Evergreen: *Abelia floribunda*, dark green shining leaves, very suitable for low walls, flowering in clusters in the spring. *Azalea amœna*, very pretty, rosy-pink, flowers in spring. *Berberis empetrifolia*, yellow, flowering in spring, a good rock plant. *Cistus crispus*, flowering in June, preferring a dry soil and sheltered position. *Coronilla valentina*, flowering in August, very elegant and pretty. *Daphne Dauphine* and *D. Cneorum major*, the latter a trailer and flowers sweet-scented. *Enonymus radicans alba marginata*, *Lavendula spica*, well known, delightfully fragrant. *Pernettya angustifolia*, dark green foliage and bright coral berries. *Skimmia japonica*, prefers shady position, bearing crimson berries. *Southernwood* (*Artemisia arborescens*), well known and highly fragrant. The following American plants are suitable in all but calcareous soils, though usually termed peat-plants, as they thrive on peaty soils: *Andromeda floribunda*, *Gaultheria Shallon*, *Erica Alporti*, *E. Hammondi*, *E. herbacea carnea*, *E. vulgaris dumosa aurea*, *Kalmia angustifolia*, *Ledum angustifolium*, *Menziesia polifolia alba*, *Prinos glaber*, and *Rhodora canadensis*—this preferring shade.

HARDY ANNUALS GROWING ABOUT 1FT HIGH WHICH ARE MOST CONTINUOUSLY IN BLOOM ALL THROUGH THE SUMMER (F. B.).—*Alyssum maritimum*, white, 6in. *Asperula azurea setosa*, pale blue, 1ft. *Calendula officinalis* var. *Meteor*, double lemon yellow, striped silver; *C. Orange King*, double orange; *C. Sulphur Brown*, sulphur yellow; *C. pluvialis*, white, 1ft. *Calliopsis Tom Thumb*, crimson; *C. marmorata nana*, yellow marbled brown, 1ft. *Centaurea Cyanus minor Victoria*, dark blue, 6in to 8in; *C. depressa*, blue, 1ft. *Eschscholtzia crocea*, deep orange; *E. c. alba*, white; *E. c. flore-pleno*, semi-double bright orange; *E. grandiflora rosea*, rosy carmine; *E. californica*, yellow; *E. Mandarin*, orange scarlet, 1ft. *Godetia gloriosa*, crimson; *G. Lady Albemarle*, carmine crimson, edged lilac, 1ft; *G. La Belle*, crimson, edged white, 1ft. *Leptosiphon densiflorus*, lilac, and *L. d. albus*, white, 1ft. *Limnanthes Douglasi*, white and yellow, 6in. *Linum grandiflorum coccineum*, scarlet, 1ft. *Lupinus nanus*, blue and white; *L. n. albus*, white. *Mignonette* in variety. *Nolana atriplicifolia*, white and blue, trailing. *Saponaria calabrica*, pink; and *S. c. alba* white, 8in. *Senecio*, dwarf crimson and dwarf white, dwarf Sweet Peas, *Cupid* and *Pink Cupid*, 6in. *Nasturtium*, *Tom Thumb* varieties, *Beauty*, *Chamæleon*, *Cloth of Gold*, *Pearl*, *Scarlet*, *Spotted*, and *Yellow*.

INSTRUMENT FOR LIFTING SLUGS.—By a simple contrivance like that shown, much disagreeable handling can be avoided. The pattern describes itself, and any odd man of a mechanical turn of mind can make such lifters out of ordinary copper or zinc wire.



INSTRUMENT FOR LIFTING SLUGS.

HINTS ON MAKING A LAWN FROM SEED (F. K.).—Preparation should be commenced in autumn or during winter, and if the site is not naturally drained it must be made so by the insertion of pipes. The various levels of the surface should then be marked, and the whole be dug over a spit deep and as evenly as possible. If the soil is fairly good and not very heavy there will be no difficulty in preparing the ground. Where it is very poor and sandy, the addition of some that is heavier and of better quality will be advisable. When too heavy the addition of road scrapings, ashes, or other opening material will greatly benefit the soil, and the lawn will accord with the depth and quality of the soil beneath. The soil having been dug all over alike should be allowed to remain until spring, when exposure to rain and frost will have rendered it solid and in good condition for treading and raking down in preparation for sowing with grass seeds. It is important that the ground be free from perennial weeds, the roots being carefully extracted and removed in digging the ground. The best season for sowing is in March and April, especially the latter, as the warm sunshine and showery weather then usually experienced are more favourable than any other for the quick germination of the seed. The surface should be of the full height required for the lawn. A verge of turf round the outside is a good guide in preparing a lawn for grass seeds, as the height of this is a good guide in determining with the eye the levelling of the inside part. The seeds should be sown evenly, on a calm day, and lightly covered by means of a wooden rake, followed by a light roller, and when the grass is well up a heavy roller may

be drawn over it before mowing. The next best season to April for sowing is August or the beginning of September, as the weather is cooler than in summer, and there is sufficient time for the grass to become established before winter. From 40lb to 60lb to an acre is the quantity of grass seed required for a lawn, the larger seeding being in most cases advisable.

THE SPANISH CHESTNUT FOR COMMERCIAL PURPOSES (Forester).—Probably the reason that the Spanish Chestnut is not often planted for commercial purposes is that it does not do well in all soils and situations. Indeed, it requires a warm, rather sheltered site when the ripening of the fruits is a consideration, but the trees will grow freely and form good specimens in almost any position. A sandy loam suits the sweet or Spanish Chestnut best. In certain districts the Spanish Chestnut is a remunerative forest tree, and when well grown and of large size the timber rarely remains long on hand. It also has considerable value when grown for poles, particularly in hop-growing districts; but its general adaptability is vastly inferior to the Oak, Ash, and Sycamore, and for that reason is not oftener planted, for it only holds second rank to those trees for utility and value.

NAMES OF PLANTS.—*Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number.* (F., Fife).—1, *Adiantum Williamsi*; 2, *Acacia cultriformis*; 3, *A. amona*; 4, *heterophylla*; 5, *Croton* (or *Codiaeum*) *Aigburthensis*. (J. P.).—1, *Croton Johannis*; 2, *C. Evansianum*; 3, *Weismanni*. (Nursery-hand).—1, *Hoya imperialis*; 2, *Hovea longifolia*. (Conifer).—1, *Cupressus macrocarpa lutea*; 2, *Olearia macrodonta*; 3, *Picea pungens Kosteri*.

Covent Garden Market.—January 6th.

Average Wholesale Prices.—Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Globe, doz.	3 6	to 0 0	Onions, per case	5 0	to 5 6
„ Jerusalem, sieve	1 3	1 6	„ per bag	4 0	5 0
Asparagus, Sprue, bundle	0 10	0 0	„ picklers, sieve	3 0	5 0
„ Paris Green	4 6	5 6	„ English, cwt.	5 0	5 6
Beans, dwarf, per lb.	1 6	1 9	Parsley, doz. bnchs.	1 6	2 0
„ Madeira, basket	1 6	2 0	„ sieve	0 6	1 0
Beetroots, per bushel	1 6	2 0	Parsnips, per bag	2 0	2 6
Brussels Sprouts, sieve	1 3	1 9	Potatoes, per ton	80 0	130 0
Cabbages, tally	2 0	3 6	„ New Teneriffe,		
Carrots, doz. bun.	2 0	2 6	„ per cwt.	12 0	14 0
„ per bag	2 6	4 0	Radishes, doz. bun.	0 9	1 0
Cauliflowers, doz.	1 6	2 6	Rhubarb, per doz.	1 0	1 3
Celery, per doz. bun.	8 0	12 0	Salad, small, pun., doz.	0 6	1 0
Cress, per doz. pun.	0 9	1 0	Seakale, per doz.	15 0	21 0
Cucumbers doz.	8 0	10 0	Shallots, per lb.	0 1½	0 2
Endive, per doz.	1 6	0 0	Spinach, per bush.	3 0	3 6
Garlic, per lb.	0 2	0 3	Tomatoes, Canary		
Horseradish, foreign,			„ Deepes, per lb.	2 0	3 6
„ per bun.	1 3	1 6	Turnips, doz. bun.	1 6	2 0
Leeks, per doz. bun.	1 0	1 6	„ per bag	2 0	2 6
Lettuces, Cabbage, doz.	1 0	0 0	Watercress, per dozen		
Mushrooms, house, lb.	0 6	0 9	„ bunches	0 4	0 8

Average Wholesale Prices.—Fruit.

	s. d.	s. d.		s. d.	s. d.
Apples, home-grown,			Grapes, Muscats, A., lb.	4 0	to 6 0
„ cookers, per bushel	3 0	to 5 0	„ „ B., lb.	2 0	3 0
„ per half bushel	2 0	5 0	„ „ „		
„ per barrel	12 0	22 0	„ Canon Hall, A., lb.	4 0	6 0
„ American, in cases	6 0	12 0	„ Gros Colman, A., lb.	1 6	2 0
Bananas, bunch	8 0	12 0	Lemons, per case	12 0	0 0
Chestnuts, bag	17 0	0 0	Lyches, box	1 2	0 0
Cobnuts, per lb.	0 7½	0 8	Oranges, per case	5 0	17 0
Cranberries, per case	10 6	0 0	Pears, per case	9 0	11 6
Figs, per box	0 10	1 0	„ stewing	10 0	0 0
Grapes, Alicante, lb.	1 0	1 6	Pines, each	2 0	4 6
„ in barrel	12 0	18 0	Walnuts, Grenoble, bag	6 6	7 6

Average Wholesale Prices.—Plants in Pots

Most of the undermentioned plants are sold in 48 and 32-sized pots

	s. d.	s. d.		s. d.	s. d.
Adiantums, per doz.	4 0	to 8 0	Euonymus, vars., doz.	4 0	to 6 0
Aralias, per doz.	4 0	8 0	Ferns in var., per doz.	4 0	30 0
Arbor Vitæ, per doz.	9 0	18 0	Ficus elastica, doz.	9 0	24 0
Aspidistras, per doz.	18 0	36 0	Hyacinths, Roman (48-		
Aucubas, per doz.	4 0	8 0	„ pots), doz.	8 0	9 0
Azaleas, each	2 6	5 0	Lycopodiums, per doz.	3 0	4 0
Begonia, per doz.	8 0	18 0	Marguerites	6 0	12 0
„ Gloire de Lor-			Orange Trees, each	3 6	10 6
„ raine, per doz.	8 0	24 0	Palms, var., each	3 0	20 0
Callas, per doz.	12 0	18 0	Poinsettias, per doz.	8 0	12 0
Chrysanthemum, doz.	4 0	12 0	Primulas, per doz.	2 0	4 0
Coleuses, per doz.	4 0	5 0	Pteris tremula, per doz.	4 0	8 0
Crotons, per doz.	12 0	24 0	„ Wimsetti	4 0	8 0
Cyclamens, per doz.	9 0	12 0	„ major	4 0	6 0
Cyperus, per doz.	3 0	4 0	Solanums	4 0	6 0
Daffodils, per doz.	7 6	9 0	Tulips, red, doz. roots	1 0	0 0
Dracænas, var., doz.	12 0	48 0	„ yellow, doz. roots	1 6	0 0
Ericas, per doz.	8 0	12 0			

Average Wholesale Prices.—Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Azaleas, doz.	4 0	to 6 0	Mignonette, per doz.	2 0	to 3 0
Bouvardias, per bun.	0 4	0 6	Mimosa (Acacia), per		
Callas, per dozen	5 0	6 0	„ bun.	1 0	1 6
Camellias, box	2 0	3 0	Mistletoe, bunch	0 6	5 0
Carnations, per bun.	0 6	3 0	Narcissus, doz. bun.	3 0	4 0
Chrysanthemums—			„ Soleil d'Or, per doz.	5 0	6 0
„ doz. bunches	9 0	18 0	Orchids—		
Daffodils, bunch	1 0	1 3	„ Odontoglossums,	2 6	4 6
Eucharis, per. doz.	3 0	4 0	„ Cypripedium in-		
Ferns—Asparagus, bun	1 0	2 6	„ signe, per doz.	2 0	3 0
„ French, doz. bunches	0 4	0 6	Pelargoniums, zonal,		
„ Maidenhair, doz. bun.	4 0	6 0	„ doz. bun.	6 0	8 0
Freesia, per doz.	1 6	2 0	Poinsettias, bun.	0 10	1 0
Gardenias, box	2 6	4 0	Roman Hyacinths, per		
Honesty (seed vessels),			„ bunch	0 6	1 0
„ per bunch	1 0	3 0	Roses, Mermet, per doz.	3 0	6 0
Lilac (French), bun.	3 6	4 0	„ Various, per bun.	0 6	1 6
Lilium longiflorum, bun.	4 0	6 0	„ White	1 6	2 0
„ lancifolium	1 6	3 0	„ Pink	1 0	2 0
„ auratum	1 0	2 0	Smilax, per doz. trails	1 0	1 6
Lily of the Valley, per			Stephanotis, per doz.	1 6	3 0
„ doz. bun.	6 0	12 0	Tuberose, strong, bun.	1 0	1 6
Marguerites, yellow,			„ doz.	0 2	0 3
„ per doz. bun.	1 0	2 0	Violets, per doz. bun.	1 0	1 6
			„ Parma, per bun.	2 6	4 0



Covered Yards and their Value.

How views and opinions change with the changing years! Thirty years ago agricultural opinion was much divided on the subject of covered yards. Few possessed them, and those that existed were low, ill ventilated, stuffy places not at all adapted for the purpose in view. Like all new ideas the covered yard was far from perfect; possibly our children in the coming years will condemn our structures, but let the future bring what it may, we have at least got at the art of making strong, durable buildings at a fairly reasonable cost. The value of a good covered yard no one disputes, and the main point now before the public is to ascertain which is the form and style best adapted for the purpose, and the cheapest in the long run.

On a large estate where everything is managed with a liberal hand, where money is forthcoming and freely spent, slates will probably be used, or in their place tiles, provided they are manufactured in the district, and are of good quality. The ventilation will be secured by an arrangement in which the upper part of the roof is raised 12in or 15in, the spars on the upper part overhanging the lower, and so while allowing a free current of air, will protect the yard below from wet in any form. There will also be ventilation where the roof touches the eaves of the adjoining sheds. These openings can be closed, if desired, by means of pieces of half-inch board which are held in their places by short chains. After a heavy fall of snow, by simply lifting these boards the accumulation can be easily removed.

Whether warmth or ventilation come first the reader must decide; both are equally necessary. An excellent way to secure good ventilation is to lay slates with about 2in gaps between. This, of course, is also more economical both as regards the number of slates employed and the quantity of woodwork necessary for the frame—the weight of slates being so much less. But of all yard coverings the one which obtains most is made of boards pure and simple, ½in or 1in thick and laid, say, ½in apart; this arrangement secures both light and ventilation, and the roof being pitched at an angle, say, of 40deg, the rain hardly penetrates at all; there should be a small groove made on each board, a little distance from the edge, which will facilitate the escape of water.

In a yard covered with wood the temperature is always more even than in one covered with either of the other materials to which reference has been made. Some people again are in favour of iron roofing, and in emergencies they are useful, being easily and quickly erected. Iron,

alas! is not a comfortable covering for stock of any sort—the congregation in a mission room, or the cattle in the shed. When you want heat, you get the maximum of cold, and the full benefit of the broiling sun (concentrated essence) in the dog days.

Then, too, unless well painted, iron is apt to suffer much deterioration from the weather, and paint is an expensive luxury, whether applied by landlord or tenant. A question, too, arises as to the possibility of proper ventilation. It can be done, but it is not easy. The cheapest thing is generally the least desirable; but there are times and situations where one has to consider how to make a little money go a long way, and on a heavily burdened estate it is often a question of no covered yard, or one cheaply and easily made. All things considered, the wooden roof is as well or better adapted as any for the requirements of the ordinary tenant farmer.

There are two questions to bear in mind; first costs, and repairing costs. Of course, slates have long lives, tiles are more fragile, and we have known a heavy gale of wind in a few minutes do many pounds worth of damage. Corrugated iron is dearer much than wood, and is rising in price, and it is still an open question as to whether its durability is as great or greater; this is one of the questions our children will have to decide on. In no case, or on no pretence should a yard have more than one side open; there is no draught, and the temperature is more even. Should the yard be well sheltered by buildings on the east let that be the side open.

Thus far for covered yards themselves; now for some of their advantages. It is a well established fact that warmth has as much to do in the production of flesh as food. The problem is how to produce that flesh at the least possible cost, and in the least possible time. Starvation and hunger go hand in hand. Due warmth and comfort given, much less food is necessary.

Fresh air, and plenty of it, without draught is as essential to the stock as it is to mankind, and there need be no fear of undue "tendering" where this is the first consideration. This was the cry of the old farmers, that covered yards tended to debilitate stock to such an extent that there was serious risk to their constitutions. Of course, there was reason in what they said; stuffy, dark yards were never likely to engender or promote health, but with years we have learned wisdom, and provide warmth without closeness, and shelter without undue "coddling."

Then there is the question of manure to consider. We all know what a powerful agent water is in dissolving almost any constituents, and what of the value of the manure in yards exposed to every drop of rain and every flake of snow? Beasts are fed on expensive food, and their excreta is of proportionate value as long as it is in a fairly dry condition. The most valuable ingredients, viz., soluble mineral matter and nitrogen, are absolutely wasted, and worse than that, draining off no one knows where; often finding their way into the water drinking supply of the farm, and cause irreparable mischief to life and health.

We may at least set down a ton of covered yard manure to be equal in value to $1\frac{1}{2}$ tons of the old rain-saturated compound. This being so, we gain in labour, for there is no harder work on the farm than filling, leading, and spreading "muck." Then, too, comes another point to be considered, as no amount of stones put in by order of the Prince could fill up the Slough of Despond, so no amount of bedding can in a wet winter make an open yard a warm or comfortable place; and straw is a valuable factor on the farm in these days of non-wheat growing. The loads upon loads of straw in the old days got certainly trodden, but there was too much of it ever to be transformed into really good manure.

It had to be led out, allowed to decay in large heaps, and then applied to the land; the long, coarse straw was unmanageable in any other way. Perhaps, too, the garth man may have a word to say. One we knew who toiled for years in open yards and is now rewarded by a warm, snug enclosure, declares his work to be quite that of a gentleman! No more sodden boots, no more soaking clothes, no more damp, starved cattle with hair all the wrong way, and no suspicious coughs! "Nous avons changé tout cela"; and recognising the value of warmth and comfort ourselves, are ready to let the dumb animals participate in the same comforts.

Work on the Home Farm.

The weather has remained dull but fine, and very warm for Christmastide. We have been ploughing turnip land and two-year-old seeds, the latter intended for a crop of oats, as the land is unsuitable for other crops, and there is not a little couch in it. To-day we have 8deg of frost and the ground as hard as if there had been sixteen. The turnip land ploughing is stopped, but we can still work on the seeds, which have a good deal of cover. Perhaps another night's frost will stop us there too. If so, we shall have to turn again to manure carting. This time we shall lead it into a hill in the field which is coming Swedes. This will be the best manure from the feeding cattle and cows, all of which are cake fed. We have also a good heap of stable manure which will do for manuring grass.

Yard manure is not very good just now. The yards were too well bedded to begin with. There was such a quantity of refuse from the stackyard during the wet harvest, also from haystack tops, and the cattle have done little to improve its fertilising properties.

There has been very little doing amongst potatoes, but prices are reported to be rising, and several merchants have just been round buying. They have been rather unsuccessful, as farmers are holding very firmly, and can with difficulty be induced to make any offer.

Every time we visit the turnip fold we notice the rapidity with which the roots are disappearing. We shall be on Swedes a fortnight sooner than we expected, and we are afraid that they will go up as quickly as the Green Globes are now doing. They certainly do not look anything like the crop they promised to be. It will be a disaster if turnips run short, and sheep are thrown on the market before grass is ready for hundreds of farmers who have been hard hit through their harvest are looking to their sheep to pull them through. We have been surprised to hear such loud complaints from the large meat markets as to the poor price of good beef. At the small country markets round here prices have been most satisfactory, and if quotations are worth anything they have been quite four or five farthings per pound above the markets complained of. Perhaps we shall get the back-wash later on.

Everyone is pig killing, but it has not been good weather for curing.

The Unemployed in Towns, and Farm Labour.

Evidently the editor of the London "Daily Mail" has read some of the articles of our Home Farm correspondent, who said recently: "Look through any agricultural paper, and complaints as to the scarcity of men will be found to be general. Wages are good; houses are cheap; hours are short. Farmers don't do much work by candle power. This is how we are fixed. Now turn to another aspect of affairs. On Friday, December 4th, a labour bureau was opened for the unemployed in a large city in the North of England. Before 5 p.m. 1,171 men had entered their names as desirous of a job. If the Corporation can make work they will, for good men; provide employment for three days in the week, and pay 11s. 3d., preference being given to married men with families."

The daily paper we have named furnished a leading article in its issue of Monday last, which, in other words, repeated some of the statements and suggestions which our correspondent had already made.

The "Daily Mail" observed that "this is just the kind of case where a central organisation can step in and supply the needs both of the farmer and of the unemployed. The fact that these advertisements for labour go unanswered even in times of distress seems to show that the railway fare on the one hand, and the unwillingness of the men to leave the towns and face what is to many of them quite an unknown life on the other, are the two chief obstacles which prevent the demand being supplied. The farmers naturally will not pay the railway fare of a labourer when they have no guarantee that he will remain with them; and even those labourers who might be able to find the money would be unwilling to spend it on going to a distant part of the country in which they might find themselves unwilling to remain.

"The suggestion, then, is that a committee should assist men who are out of work to avail themselves of this demand for labour. The organisation for keeping the men's homes together in their absence, or until it was desired to transfer them, could still be effectively used; and it would not be difficult to arrange that at least a proportion of the wages should be paid to the committee, who could apply it to the maintenance of the families at home. We feel convinced that if more of the distressed population of London knew what life in the country was really like, they would be less afraid of adopting it."

Some of the metropolitan papers have described at some length the farm colony for the London unemployed, which is in operation at Hadley, Herts.

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"A good white incurved variety, of fine form and petal."

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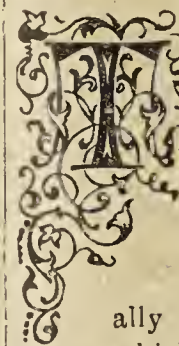
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Journal of Horticulture.

THURSDAY, JANUARY 14, 1904.

Old-time Gardening.*



HE seventeenth century saw, ere its close, three styles of garden.

Up till quite the middle of that period it would appear that the type of garden common during

the reign of Elizabeth continued to flourish. Theobald's, which originally belonged to Lord Burleigh; and which is described by Lyssons, became

the property of James I., by whom it appears to have been considerably altered, all the walls having been by him covered with trelliswork, and the walks bordered with espaliers or else arched over. Hatfield continued a place of much importance horticulturally.

As already stated, Tradescant searched Europe for novelties with which to enrich its gardens, and there is no surprise excited that Evelyn, in 1643, referring to the vineyards and gardens, should extol them for their "most considerable rarity." Twenty years later, Pepys was delighted with its Grapes and with its Gooseberries "as big as nutmegs." On Evelyn's return to London from Oxford in 1654, via Salisbury, he paid a visit to Wilton, "the garden heretofore esteemed the noblest in England."

It was not only the "noblest," but also a most interesting one, as being an example of the Continental gardens in the time of James I., when it was designed by a German named De Caux. It was an oblong walled enclosure, in length as $2\frac{1}{2}$ to 1 in breadth, in extent about 5 acres, and containing in that limited space a curious diversity of design and vegetation. The space was arranged in three divisions, with a broad central walk extending its whole length of 1000ft. The first division, which lay next the house, was composed of a series of oblong beds, those nearest the walk on each side being embroidered; that is, the

* Continued from page 575, last volume.

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

several compartments were planted with dwarf vegetation in bold and flowing lines, Blond's "Theorie et Pratique du Jardinese" containing perhaps the best examples extant of those artificialities. The space left unoccupied by these was divided into beds filled with flowering plants, and the divisional line betwixt this and the middle division was a raised terrace, whence the flower garden was overlooked.

The middle division consisted of "woods" intersected with walks, the river Nadir flowing through this portion, but so sluggishly that Evelyn remarked on its muddiness. These "woods," however, occupied only a portion of the division, for along each side, at the greatest distance from the main walk, was ranged a covered walk, not much unlike the fruit walks in vogue at present. These were 300ft in length. The third division had a beginning with two ponds, each with its fountain, and grass beyond, with walks and Cherry trees; while what may be termed the division proper was largely occupied by a large oval of grass and gravel, with specimen trees and a large brazen statue in its centre. To correspond with the covered walks already described, on each side were three arbours, which were connected by means of twining galleries. Statuary and fountains were lavishly employed throughout. This garden presents a very curious medley of designing, most of which is certainly ungardenlike.

It does not appear that in the reign of Charles I. or during the Commonwealth any gardens of importance were made. On the other hand, there is indisputable evidence to prove that many of the old gardens during, and following, the Civil War were either destroyed or irretrievably damaged by the Parliamentarians. To set against that is the irrefragible fact that the Cromwellians did much to extend the cultivation of fruits, vegetables, and farm produce.

With the Restoration, gardening entered into a new phase. Charles II. seems to have imbibed a love for the magnificent conceptions of Le Nôtre materialised in France, and on setting the example that monarch was followed by many of his nobles, and later by the gentry. At the same time, it is certain that a less extensive and a more inexpensive style was in great repute, principally among the smaller gentry, who seemed to have unbounded confidence in Evelyn as a landscapist and garden designer. During his protracted Continental visits, Evelyn became imbued with the spirit of Italian gardening with its statuary, its trim-cut vegetation, and its many hedges. French gardens, though he has left many records of their beauty, do not seem to have impressed him so much.

Evelyn was the first to introduce pergolas into England, though these were by no means the same thing we now understand as pergolas. He was fond of grass, and in more than one instance was the means of having moats emptied of water, and transformed into lawns. It is commonly thought that the famous hedge of Holly he planted at Sayes Court, and afterwards extended, was the only one he had a connection with; but, as a matter of fact, he advised, and got his friends to also plant hedges of Holly. Moreover, he had original ideas as to tree planting, and he was responsible for furnishing several parks with clumps of trees.

But we cannot escape the fact that on large estates the surroundings were completely transformed, from bare, unkempt country into enormous policies extending to hundreds of acres. It is impossible to say how much Le Nôtre himself designed in England; but he certainly had a few pupils—Rose, for instance, gardener to Charles II., Cook, and later London and Switzer, all of whom were apt to follow the lead of the master.

Artificial water, called canals and avenues, sometimes parallel as at Chatsworth, but more often radiating from common centres as at Badminton, were indispensably constituents in these designs. Gardens were extensive, those devoted to flowers lying in close proximity to the house, and the parterres largely a series of embroidery. Gibson, for instance, remarks that the parterre at Hampton Court resembled a set of lace pattern! The further end of these parterres sometimes opened on lengthened canals bounded by lines of trees; sometimes on a broad avenue with a circular termination of trees. Cashiobury, the seat of the unfortunate Earl of Essex, was of the latter kind, and the trees were planted mostly in "platones," a method which Lord Stair the second, in the succeeding century followed at Newliston, on which the country folks declared

they represented soldiers ranged in order of battle! Cooke, Lord Essex's gardener, was famed as a fruit-grower, and wrote on forestry.

Wanstead House, not far from Ilford, was one of the finest examples of purely formal design. There was a great extent of water, designed as artificially as the woods, most of which were intersected in all directions with formal rides. The gardens here were some little distance from the house. Badminton, already mentioned, had the flower garden west and south-west, the house and extensive kitchen gardens and orchards just beyond. Close clipped hedges and espalier fruit trees were largely employed. Beyond these, the fields were sub-divided by radiating avenues of great length. A magnificent approach was really an avenue 200ft in width, flanked on each side by other avenues of 80ft in width. These avenues were several miles in length.

In small estates where there was not space for these extensive operations, the designs were more severely gardenesque. Worlidge gives designs for the front gardens of a gentleman's house of this reign which is very simple. A very charming gentleman's house of the period, lying just outside a village, has in front a grass forecourt with central walk to roadway with parterre at one side, and on the garden side the house formal designs in grass with little flower beds, and outside of this the kitchen gardens and orchard. Every walk is straight, and what appears on the one side of a walk is faithfully repeated on the other.

When Dutch William came to England towards the end of 1688 he brought with him, along with a measure of stolidity that confounded his English subjects, a keen love of gardening, but which, like his temper, was severely Dutch. There is a very interesting book on Hampton Court that gives many details of the alterations he effected in the gardens there, having chosen that palace for his residence on account of its healthy situation. He spent enormous sums on building and ground alterations, for which after his death he was condemned by Burnett as being too extravagant. A novel introduction of this monarch was the iron fence instead of a high wall, and at that time distinguished by the appellation *clair voyées* on account of its being no obstruction to the view.

Switzer tells us how "The great garden, that garden next the river, call'd now the privy garden and wilderness, and kitchen gardens were made with great dispatch; the only fault was the pleasure gardens being stuffed too thick with Box, a fashion brought over out of Holland by the Dutch gardeners, who used it to a fault." After the death of his consort, William made "that great terrass next the Thames, the noblest work of that kind in Europe." Details and cost of these alterations, &c., still exist, and afford an interesting account of gardening at this period. The French designs now superseded, though characterised by great formality, yet permitted vegetation much material freedom. Now vegetation of all kinds was clipped and restricted into the severest shapes. Pope in a well-known essay mentions "Edward the Black Prince in Cypress," "A New Elizabeth in Phillyrea," "A Maid of Honour in Wormwood," "A Lavender Pig," "St. George in Box," "A Quick-set Hog," &c. And this:—

Here interwoven branches form a wall,
And from the living fence green turrets rise;
There ships of Myrtle sail in seas of Box:
A green encampment yonder meets the eye,
And loaded Citrons bearing shields and spears.

This can hardly be called a poetic fiction, because William in making Kensington Gardens found a gravel pit in a field somewhat of an eyesore, and this was blinded by means of "a mimic fortification, the bastions, counterscarps, &c., of which were of clipped Yew and variegated Holly, which was long an object of wonder and admiration under the name of the siege of Troy."

William has been said to have been the first to make use of vases in the garden, but Worlidge mentions them in 1677, "painted white and placed on pedestals either on the ground in a straight line or the edges of your walks, or on your walls or at the corners of your squares."—B.

FLOWERS FOR BRITAIN.—According to a Sheffield paper, it is estimated that £1,000,000 is spent in flowers every year in Britain. Of this sum, £300,000 goes to the Continental producer.

Experimental Gardening at Inverewe House, Ross-shire.

The assiduous labours of Osgood H. Mackenzie, Esq., F.R.H.S., Inverewe, in experimental horticulture are well known. Few proprietors have engaged the zeal in a work so promising of good; and though the climate in this part of Scotland must be mild, and therefore very materially assist, the honour is not the less great, for the strenuous efforts yearly put forth by this gentleman to promote horticulture in general. It is quite unnecessary for me to recapitulate anything that has already been stated regarding the acclimatising achievements arrived at by Mr. Mackenzie, for that I eventuate will be the common property of every British gardener who takes an interest in the matter.

For the benefit of those who, however, may not know all that has been achieved, it may be said that Inverewe Gardens are practically uncovered conservatories; that is, consisting of plants usually grown under glass, grown immensely better in the open, or at any rate better than generally seen. Mr. Mackenzie's "Notes" for the last two years are now before the public, and though both years have been anything but conducive to the interests of horticulture, on the whole matters appear to have gone on very satisfactorily at Inverewe House. The only matter of any importance was the death of some *Cistus crispus*, some large *Veronicas Andersoni*, a large plant of *Erica australis* (the latter owing to being removed), and some damage to one of the large *Dicksonia Tree Ferns*.

In February of 1902, though snow lay on the ground nearly all the month, the beautiful *Hamamelis Zuccariniana* flowered profusely. Later *Azalea Vaseyi* and *Andromeda formosa* were in fine bloom. *Abutilon vitifolium*, bushes of six to eight feet high, from seed from the late Mr. Thompson, Ipswich, blossomed profusely. *Kalmia latifolia* flowered for the first time in 1902, as did also the eight new crosses of *Azaleas* raised by Van Houtte, viz., *indica x mollis*, and made a dazzling show in June of that year. They are as hardy as *ponticum* there. *Cydonia Columbia* and *Desfontainea spinosa* also bloom well.

On New Year's Day last year the famous Tulloch variety of *Rhododendron Nobleum* was in a blaze in the garden, and in March *R. ciliatum* was also covered with bloom. Notwithstanding the prevalent storms of wind and rain which took place during the year, the five species of *Eucalyptus* grown there suffered no material harm.

On the other hand, the Scots Pines gave unmistakable evidence of their susceptible proneness to injury from gales by land or sea. A plant of *Crinodendron Hookeriana*, seven feet, peerless even in Lord Annesley's celebrated gardens, County Down, was a feature of great attraction last year; the plant was literally covered with flowers. *Rhododendron racemosum*, *Kalmia rubra*, *Erica arborea*, *Deutzia corymbiflora*, *D. discolor purpurea*, were also very attractive. *Mutisia decurrens* has stood two winters and flowered well the following seasons. Two species of *Metrosideros*, one of which is the famous Rata of New Zealand, survived several winters. The Rata has not, however, flowered yet. *Leptospermum scoparium*, the New Zealand Tea Bush, seems to be quite hardy at Inverewe.

Buddlea Colvilli flowered last summer. *Notospartium Carmichaeliae*, *Carpentearia*, *Euryphia*, *Berberidopsis corallina*, *Enkianthus japonicus*, are also among the many rare exotics in this garden. Mr. Mackenzie is not content with a plant only merely living; he must have them to grow in full robustness, and to attain to this perfection every effort is made to get at the secret. *Heuchera sanguinea* and the beautiful *Mitraria coccinea* did not succeed until he removed them from the garden to a raw peaty soil or a shrubby, in a part of the grounds called "Japan." Here in a short time they grew into a state of robustness beyond expectation. The *Mitraria* grew into a nice shrub, and was profusely covered with its delightful scarlet flowers.

Mr. Mackenzie refers to the gardens of Sir Thomas Hanbury, at La Mortola, in the Riviera, and Lord Annesley's, in Ireland, as two places one ought to see ere dying.—D. C.

P.S.—It would be very interesting to hear what is being done by others in this way throughout the British Isles.

Book Notices.

The Rose Garden.*

"The Rose Garden," by Mr. William Paul, is not only his masterpiece, but it is a chef d'œuvre among gardening books of all time. Long after its author has departed this life "The Rose Garden" will be quoted and drawn upon wherever Roses are deeply loved and studied.

The tenth and latest edition appeared about the middle of last year, fifty-five years from the date of the first edition. It

* "The Rose Garden," by William Paul, F.L.S., Tenth edition. London: Simpkin, Marshall, Hamilton, Kent & Co. 1903.

is carefully and thoroughly revised, and the lists and descriptions of the numerous varietal introductions since the ninth edition have been brought up-to-date.

To the older rosarians there is no need to formally introduce the book; but so increasingly popular is the Rose that the recruits to the ranks of its adorers may number a few who are less enlightened in this connection. And for them we would briefly explain that the work is arranged in two divisions; the first including chapters that very fully trace the history of the species of *Rosa*, and *Roses* in general, as well as detailing the formation of roseries and the culture of the plants. The second division furnishes a careful classification of all the approved *Roses* known, with their characters fully described. Nor is hybridisation and the raising of seedlings overlooked. The size of the book is 12in deep by 10in broad, and the pages amount to 382, including the index. Thus the work is of very considerable proportions. There are twenty-one coloured plates, and an equal number of full-page engravings, in the present edition, together with eighty smaller woodcuts.

To dip into the history of the Queen of Flowers need not long delay us. It was Sappho, we learn, who, nearly 2,000 years ago, bestowed the title we have just used; and it was the custom of the Greeks, and the Romans after them, to decorate both their houses and persons with the fragrant blossoms, "especially at their Bacchanalian feasts, believing the *Roses* preserved them from the intoxicating influences of wine." This choice of *Roses* must have continued down to the last of the Roman Emperors, for Tarquin the Proud is here mentioned.

We occasionally read of fabulous sums having been spent by certain millionaires on flowers for the decoration of banqueting halls in these days, but nothing can equal Nero's £30,000 spent in procuring *Roses* for one feast! All the chief authors who have touched on the Rose from the fifth and sixth centuries down to the present are quoted in "The Rose Garden."

Following the section devoted to the poetry of the Rose come the practical chapters on culture; patiently, detailedly, and explicitly written. How to plant for effect, either in borders, or beds, or roseries, or dells, or, lastly, on pergolas—all are noted; and, of course, Mr. Paul recommends the larger use of *Roses* for hedges. We think the pages descriptive of how and what to group (pages 79 to 82, also 198 to 211) will be found well worthy of very careful attention, for here the masterhand names kinds that are very hardy, moderately hardy, or others that are barely hardy, as well as varieties for heavy soils, for walls, for light soils, for pot culture, and so on. Lists of summer and autumn flowering *Roses* have been compiled. The pot culture of *Roses* and the insect pests and diseases are dealt with.

As with culture and arrangement, so with hybridising and propagating; the intricacies are brought forward and explained in letterpress. To thoroughly review the work would require much time, much labour, and some pages of the *Journal*; but even in our brevity we hope to have shown something of the contents and arrangement of the book.

Annual Report of the Smithsonian Institution.*

We have received, through Messrs. Wesley and Son, Essex Street, Strand, London, the Reports of the Smithsonian Institution (U.S. National Museum) for the years 1901 and 1902. They are bulky volumes.

First we would bring to notice the fact that this now great National Museum, which every true American tries to augment by some treasure, great or small, which he or she may become possessed of by travels in other lands—this magnificent Institution owes its foundation to James Smithson, an Englishman, who decreed half a million dollars to be used "for the increase and diffusion of knowledge among men." The wise counsels that prevailed in interpreting the provisions of this bequest led to the employment of a portion of the fund for founding a museum, universal in its scope and usefulness. (Parenthetically, we note that Andrew Carnegie has given ten million dollars for the establishment of another institution on almost identical lines to bear his name.)

In building up the Smithsonian collections, officers of the Army and Navy and of other branches of the Government service, fishermen, fur traders, private explorers, and such powerful organisations as the Hudson's Bay Company and the Western Union Telegraph Co., were enlisted in the cause, and rendered invaluable assistance. Then the U.S. Government has at all times bestowed grants with a liberal hand, and assisted the men of science in other ways.

"With the primary object of increasing the collections in anthropology, biology, and geology obtained by the national surveys, every effort is being made, through exchange, donations, and purchase, and the encouragement of exploration, to so increase its possessions that the Museum of the Government may in time contain the fullest possible representation of all

* Annual Report of the Smithsonian Institution, showing the operations, expenditures, and condition of the Institution from (1) the year ending June 30, 1901; (2) the same, for 1902. Washington: Government Printing Office. 1902.

branches of science and the arts capable of being illustrated in a material way. The specimens are classified in two series, one, comprising the bulk of the material, being arranged for purposes of scientific research and reference in laboratories and storerooms, to which students are freely admitted; the other, selected with regard to their general educational value and popular interest, and accompanied by descriptive labels, being displayed in glass-covered cases in the public halls. The duplicate specimens not required for exchanges are made up into sets for distribution to schools and colleges throughout the country. Papers descriptive of the collections, both technical and popular, are published for gratuitous circulation to the extent of three or more volumes yearly, and, finally, the Museum has come to be regarded as a sort of bureau of information in respect to all subjects with which it is concerned, even in the remotest degree, the correspondence which this involves now constituting one of its heaviest tasks."

These two Reports are really divided into two parts, the first giving a detailed account of the year's work and expenses, in the latter case even down to the hours paid for "one cleaner," or "one labourer," or "one office boy," as the case may be. The second part being given over to papers by specialists and curators, which are very thoroughly prepared, and illustrated in some cases by seventy or eighty beautiful full-page plates, half-tone and coloured.

In the 1901 volume, birds, animals, fishes, and various tribes of Indians are numerous figured, as well as textiles and pottery (in colours) of the American Indians. In the 1902 Report there are fewer plates, but the variety of subjects discussed is greater.

In the general appendix to this volume we find articles on The Radio-activity of Matter; History of Cold, and the Absolute Zero; The Progress of Geographical Knowledge; Volcanic Eruptions on Martinique and St. Vincent; The Discovery of the Future (H. G. Wells); Craniology of Man and Anthropoid Apes; Wild Tribes of the Malay Peninsula; The Pygmies of the Great Congo Forest; The Nile Reservoir Dam at Assuân; Problems of Heredity and Their Solution (W. Bateson); and other papers.

Each volume has a well arranged index.

The Early Order Sheet.

The great retail seedsmen of this country will soon be in the height of their busy season, a time when the inrush of orders requiring immediate attention is so overwhelming as to make the stoutest hearts quail in anticipation of the usual turmoil. Under such circumstances, what might be a time of real enjoyment to all the workers engaged in the seed trade becomes a period of nerve-shattering strenuousness, under the strain of which many break down. Gardeners throughout the country, and the public generally, might, by the exercise of a little forethought, do much to make the lot of the seedsmen and their assistants less arduous by ordering early.

Catalogues are published in the autumn in order to tempt customers as far as possible to order early the good things which are to give them untold pleasure in the coming season, and yet, in the majority of instances, although the lists may be scanned over and over again, no determined effort is made to get the real order completed until the "gleamy" days of spring remind the cultivator that the time of real sowing is at hand. Then off goes a hastily written order with the request that it be attended to at once. Shortly after it is discovered that certain necessities were not included in the list; away goes another order—this process often being repeated three or four times during the busy season, to the bewilderment of the men who are working night and day to keep pace with the demands made upon them.

No one is infallible, and it is not always possible to order every item required three months ahead, but undoubtedly a little deliberate forethought and calculation would, in hosts of instances, make matters work more smoothly all round. And let us all bear in mind that the man who orders early receives the best attention, and is not likely to fail in getting the best to be had.

This year there are special reasons why seed orders should be sent in early, for in that year of deluge 1903 the seeds of many crops failed to ripen satisfactorily, with the result that good stocks of many popular varieties of vegetable and flower seeds are extremely scarce, and the "late birds" will undoubtedly in many cases have to be contented with inferior samples, or perhaps with the refuse of former years. Let me, therefore, appeal to all interested who have not yet made out their seed order to do so at once—sit down and deliberately scan the lists, and after the necessary calculations have been made in regard to quantities, enter them in the columns so conveniently provided, despatch the order, and then rest assured that the first step toward success in the present year has been taken.—WARWICK.



Lælio-cattleya × *Cassiope*, Westonbirt variety.

This variety received an award of merit when staged by Captain G. L. Holford (grower, Mr. H. Alexander), of Westonbirt, Tetbury, at the meeting of the Royal Horticultural Society on November 24, 1903. *L.-c.* × *Cassiope* has for its parents *Lælia pumila* and *L.-c.* × *exoniensis*. This form of it is a fine flower, with pale lilac sepals and petals, a purple, frilled lip, with a yellow-veined throat. Our illustration is from a drawing by Mr. Geo. Shayler.

Hybridising of *Cypripediums*.

In reply to E. Viner, I would say that the pollinating of the stigmatic surface in *Cypripediums* is simple enough. The flower is less easy to manipulate than that of a *Cattleya*, certainly; but there is no difficulty. Bend down the pouch and notice the pollinia masses, one on either side of the column. Having secured one of the masses on the end of a pointed stick, turn the flower round and backward a little, so as to expose the triangular shaped stigmata, which is on the under surface of a flattened, shield-like protuberance that dips down from the main part of the column. Now deposit the pollinia on this part, and leave it; the work is then done.—D.

Cypripedium insigne, in small pots.

Your able correspondent, "E. M.," recently mentioned some plants of this useful winter flowering subject at Ugbrook Park, as grown in small pots. Calling the other day on Mr. Thos. Crosswell, gardener at "Homewood," Beckenham, I was shown six plants in 9in pots carrying foliage one yard through, as perfect in form as a well dressed *Chrysanthemum* bloom. The flowers were large and well developed, averaging about fifty—the one I counted gave fifty-eight, three being twins. The blooms are not staked, but grow out from the foliage in a natural manner, giving a circumference of 12ft. These plants have not been potted for eight or nine years, consequently they are fed on farm drainage, Clay's fertiliser, soot water, and guano—weak and often. These six plants occupy the whole of one side of a span-roofed house, furnishing a supply of choice cut flowers for a long period; some useful plants in 4½in pots are carrying nine good blooms.—M. W.

Cultural Notes: *Lælia anceps*—Potting—Cleaning.

After the flowers of *Lælia anceps* are over lose no time in attending to the compost, as roots appear very early in the new year, and these are apt to be damaged in the process. Possibly only a very small percentage of the plants will need rebasketing or repotting, but a little tidying up will be necessary for all. Growths will perhaps have got loose, or are extending beyond the scope of the compost. In the former case a little moss and peat will be placed about them and the loose growth made secure; in the latter a larger basket or block may be needed, or more compost placed in the old one.

In all cases remember that sour or decayed material is the worst of all possible rootholds, and unhealthy plants must eventually result if they are left in it. On the other hand, never disturb a plant at all at the roots unless it is really necessary; for although recently imported and healthy plants soon take with a will to new surroundings, weak or diseased ones are not so easily re-established. Take the opportunity, when the roots are exposed, to cut away all dead and decaying ones, as well as any old lack-lifeless pseudo-bulbs not likely to break again.

The busiest season of the year for potting is not far off, and any spare time may well be utilised in preparing a stock of composts, moss, peat, fibry loam, crocks, charcoal, and leaf soil. Also see that there is a sufficient stock of labels, stakes, pots, baskets, and pans cleaned and in readiness. A piece of copper wire twisted at the bottom of a short label to make a stem is better than a long wooden one, as these sometimes occasion fungoid attacks. Split bamboo stakes, too, are preferable to deal for the same reason, and absolute cleanliness of all material used is essential to success.

The winter cleaning, too, must be brought right up to date, as there will be plenty to do later on, and during the next few months insects increase and multiply in a remarkable manner, running over the tender new foliage when it appears and making it unsightly the whole season. The value of clean soft water as an insecticide is not sufficiently known—or, at least, the knowledge is not acted upon. A good dipping in tepid water first, then a sponging with soft water to which a piece of softsoap (the size of a pigeon's egg to a bucketful) has been added, and a final thorough syringing again with soft water, is a very effectual method of killing insects of nearly all kinds.—H. R. R.

Flowers of the Bible.

At this season of the year in our calendar, when the thoughts of many have been more particularly wafted to that historic event in the world's history enacted on the hill-tops at the little village but a Sabbath day's journey of the golden Jerusalem, a few words on the flora of the land in which Bethlehem, now for all ages famous, is located, may not, perchance, be deemed out of place.

It might seem at first sight as if so comprehensive a collection of writings as the sacred Scriptures would contain plentiful reference or mention of such products of the soil as its trees and flowers; yet as regards the latter, at any rate, the contrary is the case. Indeed, incredible as it may appear, of individual flowers proper, with one single exception, not one is specifically spoken of, and that exception refers in reality to a perfectly different flower to what is known as the Rose of to-day; for "the Lily" occurring in several places is, as will be shown anon, merely a general term, and synonymous with the expression "flowers of the field" used elsewhere.

Although Palestine in those days was singularly different from the condition of the country to-day, it is not difficult to account partly for the change. Particularly fertile then owing to the rich chalky soil on the surface, the wear and tear of ages, especially from the washing away of this medium by rains and torrents, have left but the bare and barren basalt or granite rock in the case of the southern and Mount Sinai portion, and the limestone fabric as regards the central and northern parts.

Still, even formerly much of the land could have been by no means bountiful, "the howling wilderness of Judea" being certainly not the only desolate or barren region with which the Holy Land was endowed, and these considerable areas could, from their configuration or composition of granite rock or sandy desert, hardly be expected to render a very festive account of themselves. Nevertheless, even these less favourably disposed districts have at the present time at one period of the year a not unpleasing aspect from the floral point of view. Bare and arid as seen at most seasons, observed after the "latter" rains in early spring, your gay little Arab will canter along over a perfect carpet of the bright scarlet Anemone across the wide stretch of depressed ground at the foot of the mountains between Jericho and the Dead Sea.

Indeed, this basin is, or at any rate could be rendered, in reality a very rich alluvial plain, were some system of irrigation from the deep and sinuous Jordan, here as it approaches its end in the great salt lake, taken in hand. As it is, whatever it may have been in Bible days, it must be looked upon as but little better than an inhospitable and unprofitable desert, with nothing but the scanty tufts and short-lived herbage of the spring to sustain the small flocks of goats and sheep or the few camels which are as of yore the staple stock-in-trade of the wandering Bedouin, while Jericho, long shorn of her pristine proud glories, is but now a mere hamlet of scattered adobe huts and temporary black-tented habitations.

But to return to the theme more particularly under discussion, the flowers specifically named in Holy Writ. I fear as to the first to be dwelt upon, viz., the Rose, we must at once disillusion ourselves, for, like the Apple which never flourished in Palestine, and was in all probability, according to Tristram and others, the Apricot, this queen of flowers, which in these modern days has been brought to such a pitch of excellence, was also neither indigenous or existing, though undoubtedly wild Roses are found in the Lebanon. It may reasonably be supposed, therefore, that the Rose of Sharon symbolically repre-

sented in Solomon's wonderful song, was the Narcissus, which is indeed the typical bloom on the plains of that region. Mention of this flower is made but twice in the entire Bible, once as above and again in Isaiah, "The desert shall blossom as the Rose." Possibly the Rose of Jericho was the Oleander. There is a single mention of the Mallow, which may not unreasonably be taken to be what we commonly call the Marsh Marigold; while the reference to the Saffron is as to the ingredient obtained from the Crocus, which grew probably then as now broadcast over Palestine generally o'er hill and dale, much similar to the way it springs up through the turfy loam of the meads and hill slopes in Switzerland and the Engadine.

Of flowers proper, then, with the exception of the "Lilies of the field" dealt with hereafter, there is little further to be added, but in a subject like the present we may, I think, include other plants where emphatically introduced, and possessing in most cases some sort of a blossom. Thus herbs in plenty are mentioned, and Garlic, of the Onion tribe, was cultivated and found in plenty both in Palestine and Egypt. The Mustard spoken of in the New Testament shows us that the fertile and sympathetic soil which nourished it produced a more vigorous plant than that in our own country, for it apparently attained the remarkable height of 10ft to 12ft in stature. The Lentil was a seed obtained from a kind of Vetch, in which connection it is interesting to remember that it was for a mess of pottage of this grain that Esau parted with his birthright. The Coriander was an aromatic plant, and in the description of the wondrous phenomenon of the manna this miraculous food was compared to the seed of the above-named.

Then there are various healing plants or substances therefrom brought to our especial notice. Thus, the Balm or Balsam (Balm of Gilead) was a gum extracted from a shrub not indigenous indeed, but cultivated for its medicinal or curative properties, chiefly in the plains of Jericho, and having now apparently quite disappeared again. Frankincense was a fragrant, resinous emission from a kind of Mountain Ash, growing in Arabia; while Myrrh, mentioned in company with the former as gifts of the Magi, was obtained from the bark of a thorny shrub, probably a Cistus or Rock Rose, which flourished round about Mount Carmel. Very bitter herbs named are gall and rue, the former in connection with the Crucifixion, and the latter having a single reference in St. Luke as being tithed by the Pharisees. Wormwood, too, was a plant, and the emblem of very dire distress.

Other herbal plants finding a place in the Scriptures are Anise, a herb yielding an aromatic seed, much like the Caraway and Mint, which was ordered to be eaten with the Paschal lamb, and was precisely similar to that of the present time in our everyday garden for seasoning purposes. A less familiar growth is the Camphire, being presumably the "henna" of the East, the dye from which Eastern women stain their nails and parts of their face. It was probably a small shrub, having a yellow-white flower.

Flax was, undoubtedly, in very ancient times, especially in the land of

Canaan, pretty extensively grown, and then, as now, manufactured into linen of different degrees of fineness; thus the priests of the Temple, we read, were arrayed in "fine linen." Aaron's rod, which budded so wonderfully (and, presumably, blossomed, too) there is but little doubt was the ordinary Almond, one of the commonest of Palestine's then growths. One other plant deserves notice, though partaking more of the nature of a wild fruit, videlicet, the vine of Sodom, reference to which occurs in Deuteronomy, "Their vine is of the vine of Sodom." It seems likely that this is the same as the Calotropis, a plant growing near the Dead Sea, which has blossoms of a white colour, and fruits not unlike an Apple, but totally unfit for food.



Lælio-Cattleya × Cassiope, Westonbirt var.

And now to conclude with a word or two on the familiar expression, "Lilies," or, as elsewhere, "flowers of the field." These so-called Lilies were merely a general term for the usual and multitudinous flowers growing among the herbage in great quantities broadcast throughout Palestine, and being chiefly of a bulbous type, such, for instance, as the Crocus, Tulip, Anemone, Narcissus, and Ranunculus. The Song of Solomon, abounding in poetical expressions, has several references to this ubiquitous "Lily," being the symbolical emblem of loveliness and purity. Among others, we call to mind "I am the Lily of the Valleys," "The Lily among thorns," "He feedeth among the Lilies."

Again, we have in the New Testament the very familiar, "Consider the Lilies of the field, &c." The writer well remembers the delights of most of these same "Lilies" having their habitat, and just emerging from the soil in all their early spring freshness, arrayed in their wealth of perfect simplicity as implied in the above passage, upon the hill country and mountain valleys between the regions of Hebron and Bethlehem and the wilds of Marsaba, that grim, precipitous abode of monkish anchorites, and the desolate shores of the Dead Sea.—VIATOR.

Exotic Conifers in Britain.*

(Concluded from page 5.)

The early introduction of exotic trees into Great Britain was by no means a matter of chance. On the contrary, it was the result of a strong demand on the part of landowners, to satisfy which systematic expeditions were organised, either by (a) existing societies, (b) special associations, or (c) commercial nurserymen. In all cases, other plants besides trees received attention, though in some cases trees, and especially conifers, were the main object. In 1823 David Douglas was engaged by the Horticultural Society of London, and, after a short visit to the Eastern States of North America, he sailed in 1824 for North-West America, where he remained till 1827. After two years at home, he sailed for California in 1829, and met with a tragic death in the Sandwich Islands on July 12, 1834. To Douglas we owe many of our most valuable conifers, e.g., *Pinus insignis*, *P. Coulteri*, *P. Lambertiana*, *P. monticola*, *P. ponderosa*, *Abies amabilis*, *A. bracteata*, *A. grandis*, *A. nobilis*, *Picea sitchensis*, and *Pseudotsuga Douglasii*.

It was also the Horticultural Society that sent Theodor Hartweg to North America in 1845, the most notable of whose introductions were *Sequoia sempervirens* and *Cupressus macrocarpa*. In 1843 the same society had sent Robert Fortune to China, and to him we owe *Cryptomeria japonica* and other trees of lesser importance. The cost to the society of despatching collecting expeditions from 1840 to 1846 amounted to £3,837 13s. 1d.

In 1849 an association was formed in Edinburgh which had for its object the despatch of a collector to North-West America. This association—known as the Oregon Botanical Expedition—was supported by landowners and nurserymen, chiefly Scottish, each subscriber taking at least one share of £5, the results of the expedition to be divided amongst the members according to the number of £5 shares. The sum subscribed in the first year was £950; subsequently increased to £1,445, most members taking a single share, though some—chiefly nurserymen—taking four to six, and even up to ten. John Jeffrey was appointed collector, and sailed for Montreal in June, 1850, reaching the district west of the Rocky Mountains in the following year.

The Hudson's Bay Company granted him a free passage, while the Admiralty promised to assist with their ships on the North-West coast of America. The first consignment of plants and seed arrived from San Francisco in 1852, the postage of which amounted to £135, but the Post Office authorities generously agreed to waive their claim. To Jeffrey we owe *Abies lasiocarpa*, *T. Mertensiana*, *Thuja gigantea*, *Libocedrus decurrens*, *Pinus flexilis*, *P. Balfouriana*, *P. Murrayana*, and *P. Jeffreyi*.†

In 1854 an expedition was undertaken to California by Messrs. Beardsley and Murray, and the result of their efforts was the introduction of that fine tree, *Chamaecyparis Lawsoniana* and one or two others of much less importance.

One other private expedition may be mentioned, namely, that of John Gould Veitch, a member of a famous firm of

English nurserymen, who, in 1860, set out for Japan, and was instrumental in introducing *Larix leptolepis*, *Abies firma*, *Picea polita*, *P. ajanensis*, *P. Alcockiana* and others.

The number of species of conifers that find conditions more or less suitable to their requirements in some part of Great Britain and Ireland considerably exceeds 100. Mr. Dunn, in his census prepared for the Conifer Conference of the Royal Horticultural Society in 1891, gives the dimensions of 102 species. I do not, however, propose to include in this paper any that are not at least fairly common, and which hold out the prospect of attaining the dimensions of useful forest trees.

With few exceptions exotic trees in Great Britain are grown in isolated positions, so that their stems are covered with branches quite down to the ground. The result is, that for any given age, their girth at breast-height is greater than would be the case with trees of a similar age grown in close forest. On the other hand, the height is probably less than it otherwise would have been. The circumference is given at 4½ ft from the ground. The ages given are calculated from the time of planting, at which time the tree would, as a rule, be four years old, so that to get the actual age from the time of sowing the seed the figures would generally have to be increased by four.

The dimensions given for the various species are not averages, but are the result of actual measurement of individual trees situated in the districts indicated. As a rule, for any given age, the largest tree has been selected. Some may think that this is not a fair index of what a particular species may be expected to attain to at any given age, but I am disposed to think that the maximum height recorded for a certain age, in the case of a tree grown in a garden or park, is more likely to represent what may be looked for when the same species is grown in close forest, than the average height of all the trees of that age would be. It is to be remembered that the figures that follow are taken, for the most part, from "specimen" trees, and that in their case there has been little application of the law of the survival of the fittest. Suppose that forty years ago an order was given to a nurseryman for five Douglas Firs about 3 ft high, the plants supplied might vary from three to six years of age.

A Douglas Fir that attains the height of 3 ft in three years may be regarded as an individual with a natural tendency to vigorous growth, whereas if six years be taken to reach the same height the particular individual is manifestly a slow grower. If the five Douglas Firs were intended for landscape effect, each would be set out with abundance of room, and, no matter whether it grew fast or slow, it would be allowed to survive. At the end of forty years the tallest of the trees might be 80 ft, while the smallest might not exceed 40 ft, giving an average of, say, 60 ft. But if a number of Douglas Firs were planted 3 ft or 4 ft apart, and managed in true sylvicultural fashion, the only individuals that would survive to the age of forty years would be those with a natural tendency to rapid growth; all the others would long before have been suppressed or removed in the thinnings. The average height of the wood would therefore be not 60 ft, but 80 ft; hence it follows that in converting the results of arboricultural treatment into terms of sylvicultural treatment we should take as the basis of our calculations not the average but the largest trees. I am aware, of course, that "specimen" trees are usually set out in good soil and in well-sheltered and otherwise favourable situations, but, on the other hand, they lack the "drawing-up" influences of a closely stocked wood.

In the tables [Which we have had to omit.—Ed. "J. of H."] it will sometimes be found that a young tree has attained to greater dimensions than an older one. The reason for this may be explained. In dealing with any particular species the choice of specimens decreases with age, that is to say, whereas we may have twenty measurements of twenty-year-old trees from which to select, we may not have more than one or two in the case of sixty-year-old specimens of the same species. The chances of being able to record the dimensions of a "dominant" tree of the latter age are, therefore, relatively small.

In compiling the tables free use was made of Mr. Dunn's census,* though other reliable sources have also been drawn upon. In many cases I have been able to secure measurements in June, 1903, of the same trees whose dimensions, in the spring of 1891, were recorded by Mr. Dunn. In this way a record of the growth made during the last twelve years has been obtained. In some cases the particular tree has lost its top in the interval between the two measurements, which accounts for the height recorded in 1903 being sometimes less than that given in 1891.

Dr. Somerville then proceeds to name a number of conifers in alphabetical order, and furnishes tables showing where the oldest and largest trees are growing in Great Britain and Ireland.

* Translation of a paper contributed by Dr. Somerville to the Congress of Forestry Experimental Stations, Vienna, September, 1903. Reprinted from the Journal of the Board of Agriculture.

† I am indebted to Professor Bayley Balfour for access to the minutes of the Edinburgh Oregon Association, and for the perusal of some of Douglas's correspondence.

Oakwood, Wisley:

THE NEW GARDEN OF THE ROYAL HORTICULTURAL SOCIETY.



OPINIONS vary, as they ever will when the matter is of some importance, as to the wisdom of having accepted a garden so far from the centre of London, and in such an ungetatable locality. The gift of Oakwood, at Wisley, in Surrey, which was the garden of the late Mr. George F. Wilson, F.R.S., by Sir Thomas Hanbury, of La Mortola, Italy, certainly relieved the Council of the R.H.S. from an exceedingly embarrassing position—a position which need not have arisen—and from many points of view the gift is a great blessing. But the fact remains that to get to Oakwood means one whole day's outing, and even then a very considerable portion of the time will perforce have to be spent in travelling to and fro. The garden is situated in a valley, is surrounded by streams and meadows, wood, coppices, and, on the east, the fairly extensive Wisley Common. One wanders for long distances through the lanes and country roads without seeing any other than the field labourers, or the bargemen on the Wey, or here and there children at play, and merchants' vans trading in the country around. The late Mr. Wilson did not live at Oakwood, but at Weybridge, a town five miles away, and he chose Oakwood when he retired from business as just the place for the kind of garden he pictured in his mind—an informal garden, with the plants and shrubs naturalised and growing as in their own habitats. Nor did he spend more than two, or perhaps three, days per week in his beautiful garden; he left it in charge of Mr. Tatnall, who had a substantial house on the spot. Mr. Tatnall, we may remark, has left Oakwood for a situation in Leicestershire, and Messrs. Veitch's late herbaceous plant foreman (Mr. Fraser) has succeeded him.

Whether the Royal Horticultural Society can arrange to run a motor vehicle at stated intervals on certain days of the week remains to be seen; but such a means of transit seems almost necessary. Fellows might be required to pay into a certain fund, or be individually taxed for each occasion of using such vehicle.

The garden trials will not be conducted in 1904, but the Chiswick collection of herbaceous perennial plants are now being transferred thither. The formal entry of the entire staff may be made in May. A suggestion was recently made by the officials of the South-eastern Agricultural College at Wye to establish a horticultural school, as well as a forestry school, at, or very near to, Wisley; but of this we have heard nothing further. The Swanley Horticultural College means to make use of Wisley by taking students there on certain days of the week.

Now to the garden itself, which we had the privilege to visit in September last year. It is twenty miles from London, and is best reached by taking train to Weybridge Station from Waterloo, thence by cab. Or again, from Waterloo to Byfleet, and walk three or four miles through winding narrow lanes, and run the chance of going off on a wrong path. When Oakwood and Glebe Farm estate were put up for sale, the auctioneers (Turner and Co., Audley Street) furnished some particulars, of which we take the following:—

"The estate is freehold, and situate amidst beautiful rural country, whilst its immediate surroundings are most picturesque. The delightful Wisley Common borders it on the one side, on the other it slopes to the River Wey. It is only a short distance from the main Portsmouth road between The Huts, at Wisley, and the quaint old village of Ripley, which is distant about $1\frac{1}{2}$ miles. Byfleet and Horsley Stations are distant about $3\frac{1}{2}$ and 4 miles respectively, and Weybridge about 5 miles. There is a gentleman's small residence, erected by Messrs. Lascelles and Co., of timber framing and concrete slabs, with red-tiled gabled roof, situate on the upper ground, commanding pretty views, and approached by a charming drive bordered by fruit and Hawthorn trees and flowering shrubs; it contains entrance hall, two sitting-rooms about 15 by 12, and 12 by 12 respectively, kitchen, &c. There is a good site for a larger residence on the still higher ground, towards the southern boundary of the property. 'Glebe Farm House' is a bungalow of similar construction to 'Oakwood'; it contains two good sitting-rooms, four good bedrooms, pump and water supply, earth closet, coal shed, and garden. The outbuildings are old, they comprise timber and tiled stabling, barn, root store, open sheds, fattening stall for sixteen beasts, &c.

"The gardens and grounds are within a delightful Oak wood, and there are numerous well-grown trees, extensive shady walks bordered by ornamental shrubs, most pleasing fruit and vegetable gardens with a fine selection of highly productive fruit trees of the choicest sorts, with Apples, Pears, Plums, Damsons, Quinces, bush fruit and shrubberies, broad grass paths and herbaceous borders, the gardens being supplied with water from a well with gearing forcing it to tanks. There is another vegetable garden and a large plantation of Pine and Broom. The alpine, rock, wood, and water gardens have spring-fed ponds, over which is a rustic bridge. They are fringed with Japanese Irises, fine-foliage plants, ferns, &c., including Bamboos, Eulalias, *Arundo conspicua*, New Zealand Flax, *Saxifraga peltata*, *Osmundas*, *Gunnera scabra*, and a splendid specimen of *Gunnera manicata*, ornamented by a great variety of new hybrid Water Lilies. The Cape Pondweed with its scented flowers is thoroughly established. There is also a large field with banks and winding ditches containing thousands of Japanese and other Iris, Roses, Lupines, &c. The gardens contain a valuable and unique collection of new and rare flowering and ornamental plants, trees, shrubs, rock, alpine, and herbaceous plants and bulbs, bamboos, ferns, and Lilies, with hedges and banks of Japanese and other Roses, including the new Ramblers and Hybrid *Wichuraiana* Roses.

"From early spring until the end of May there are thousands of plants and bulbs carpeting the ground almost everywhere, forming a very pretty picture under the flowering trees and shrubs. They include all the well-known spring flowers, such as Snowdrops, Snowflakes, Squills, Muscari, *Chionodoxas*, Hepaticas, Cyclamens, Hellebores, Crocuses, Trilliums, Lily of the Valley, Orchises, Erythroniums, Primroses in every shade of colour, including the well-known Oakwood Blue; Japanese, Indian, and alpine Primroses and Anemones; a splendid collection of Anemones, Narcissi, and Gentians. One border of *Gentianella* (*Gentiana acaulis*) is over 120 yards long. There are also bulbous Irises, Tulips, Camassias, &c. Among the spring and early summer flowering shrubs are *Andromedas*, *Prunus pissardi*, *Cydonia japonica* in a great many varieties; *Berberises*, *Sedums*, *Viburnums*, *Weigelas*, *Exochordas*, *Forsythias*, Japanese Cherries, *Styrax japonica* and *Styrax obassia*, *Phillyrea decora*, *Skimmias*, *Zenobias*, *Spiræas*, *Vacciniums*, a great variety of *Pyruses*, *Cotoneasters*, *Cytisus*, flowering Thorns, *Chimonanthus retusa* and *virginica*, *Calycanthus præcox*, *Daphnes*, and a splendid collection of Azaleas. *Rhododendrons*, and *Kalmias*."

It would be wearisome to name all the late summer and autumn-flowering shrubs, but these include "*Spiræas*, *Hypericums*, *Deutzias*, *Philadelphus*, *Althæas*, *Caryopteris mastacantha*, *Ceanothus*, *Clethras*, *Cistus*, *Heaths*, *Pernettyas* with many coloured berries, *Abelias*, *Leycesteria formosa*, *Osmanthus illicifolia*, *Andromeda arborea*, *Buddleia globosa*, and *Viburnum macrocephalus*."

"The rock, alpine, and bog plants include *Pinguiculas*, *Sarracenias*, *Orchis*, *Gentiana ornata*, *Rhexia virginica*, *Nierembergia rivularis*, *Mimulus radicans*, *Galax aphylla*, *Ourisia coccinea*, *Campanulas*, *Androsaces*, *Daphnes Blagayana* and *hyemalis*, *Onosma taurica*, *Hypericum reptans*, *Mitchella repens*, *Gaultheria procumbens*, *Linnaea borealis*, *Dryas octopetala* and *D. Drummondii*, *Ramondia pyrenaica*, *Anemone palmata*, *Armerias*, *Veronica Bidwillii*, *Haberlea rhodopensis*, *Epimediums*, *Arenarias*, *Lithospermum prostrata*, *Euphorbia pilosa*, *Soldanellas alpina* and *minima*, *Shortia galacifolia*, *Dianthus alpinus*, *Schizocodon soldanelloides*, the new and beautiful *Lewisia Tweedi*, *Tecophilea cyanocrocus*, and many other things.

"The land includes about nineteen acres of Oak wood, gardens, grounds, water, and sites; about eighteen acres of grass land, and about $22\frac{1}{2}$ acres of arable, prettily timbered and sloping to the River Wey, with the boathouse thereon. The total area of the land is about $59\frac{1}{2}$ acres. The arable fields are let with the Glebe Farm House and buildings to Mr. G. F. Gaylard on a yearly Michaelmas tenancy at £28 per annum, the grazing over the grass land is let to Mr. Ward at £8 per annum. The small residence and the gardens and grounds are in hand, and possession can be had of the same on completion. The growing timber and the whole of the valuable plants will be included in the purchase money. The property is subject to tithe, the amount payable being £10 per annum. The

vendors believe that land tax is not payable, but this is not guaranteed."

No one visiting Oakwood in September could fail to be greatly attracted with the breadths of *Gentiana asclepiadea*, which grows 2ft to 3ft high, bearing numerous bluebell flowers on the slightly inclined stems. There is also a white form, and as this graceful plant dies down out of sight in winter, there is no trouble whatever with it. Oakwood seems to suit it immensely. The Golden-rayed Lily of Japan has been naturalised beside other Lilies back in the shady glade of the wood; while out in the open sunshine there was a mass of the charming *Antholiza paniculata*, with orange scarlet flowers. Long lines of *Saponaria officinalis* fl.-pl. call for note, as being one of the finest of the old-fashioned plants of our gardens. A novel feature, too, is the ditches that line either side of the winding paths wherever one goes, and these are given over to dwarf ferns and suitable moisture loving plants. They tend to keep the paths well drained.

Mr. Wilson was a lover of birds as well as of flowers, and here and there as you walk along, an artificial nesting cot perched 10ft high on an upright pole comes into view. These were placed there for the tits, the woodpeckers, and other useful little feathered denizens. But mice, which wrought such constant damage amongst the bulbs in the woodland grounds, were trapped daily. Mosquitoes are another pertinacious plague to the men as they weed or perform other work in this part of the garden. So terribly troublesome are they that the gardeners have to light fires around themselves in order that the smoke may drive the insects off. It is a case of choosing the lesser of two evils, for the smoke itself is far from being agreeable.

Again, it is of interest to note that sheltered corners were formed in divers parts of the garden. These shelter corners were made of wicker hurdles in the first instance, forming a kind of corral within which the less hardy, or doubtfully hardy, subjects were planted until they had become established and in a measure acclimatised. The hurdles might then be less necessary. The Sikkim Rhododendrons, the *Phyllostachys* and *Bambusas*, together with scores of *Lilium superbum* seedlings, all in the open air, were robust and very interesting. Alas! that Oakwood is so far away.—J. H. D.

Larch and Scots Pine in Roxburghshire.

Some fourteen or fifteen years ago I assisted (by way of youthful recreation only) at the planting of the European Larch and the Scots Pine (wrongly called Fir), on the hill-lands of the Housebyres Farm, near Galashiels, and which is farmed by Mr. Thomas M. Young. A great part of the land was what I would probably now term bleak upland, but which nevertheless produces a fair good herbage (I write from memory), and in places enormous growths of Bracken Fern. The district is famous for its good farmers—men who till both knowes and hollows just as they do the level ground, and who take droves of heavy "knowt" (i.e., cattle) to St. Boswell's Market. Sir Walter Scott, too, in his novel, "The Monastery," has informed the world and his wife about Glendarg Castle; and the Fairy Deane, and the River Tweed, and the rest of those beloved haunts; and Housebyres may be mentioned too, though I do not remember. But it was the trees I wished to write about.

So far as memory serves, they were planted rapidly and roughly in cold weather, and in a recent reverie it occurred to me to write and ask Mr. Young what success had attended them. He promptly sent a most interesting reply, which I print as follows:—

"Your letter to hand this morning (January 9, 1904). With reference to the trees, we think they have done very well, especially the Larch. They have been twice thinned for net and fencing stakes. I think they grew too quickly, as, when dry, the stakes are too light and of poor quality, as if they had shot up too rapidly. The Larch are now perhaps twenty feet high (rough guess), and the Spruce and Scots Pine are a little less. They received very little attention, and in some places the Bracken choked them out, as it grows from four to five feet in some spots. If you wish any further particulars I will try to supply you if you let me know."

Well, that is very satisfactory. In the Journal pages the editor hopes shortly to bring prominently before the notice of his readers the merits of the Japanese Larch (*Larix leptolepis*). I may remark that, low though the price is at present for Scots Pine (4½d. per foot), yet huge tracts of young forests line the hills within view of the railway between Inverness and Dornoch; and surely if it pays to bring this and similar white wood from Norway and Sweden, it ought to in our own land. In Sussex I know of plantations of Corsican and Scots Pine that have grown up twenty feet in ten years. The trees were planted a few feet apart as tiny seedlings (thousands were packed in a small box and sent from Normandy, and were almost heated on the way), and as yet they have not been thinned. The lower branches, of course, are dying off, but the stems are stout and straight.—D.

NOTES & NOTICES

The Royal Gardeners' Orphan Fund.

Sir Trevor Lawrence, Bart., K.C.V.O., President of the Royal Horticultural Society, has kindly consented to preside at the next annual festival of this fund, which will take place at the Hotel Cecil on Tuesday, May 17.

Potato Spirit v. Petrol.

In a letter Mr. H. Dunkin says: "I think that you will find that although the quantity of Potato spirit may just at present be too small to make it a commercial commodity, yet during the present glut it will come rapidly into prominence, as a factory is now being erected for its manufacture."

Royal Meteorological Society.

The next ordinary meeting of the Society will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, the 20th inst., at 7.30 p.m. The annual general meeting will be held at 7.45 p.m., when the report of the Council will be read, the election of officers and Council for the ensuing year will take place, and the President (Capt. D. Wilson-Barker, F.R.S.E.) will deliver an address on "The Present State of Ocean Meteorology." During the meeting the Symons Gold Medal will be presented to Hofrath Dr. Julius Hann.

Veitch's Nursery at Chelsea

Frequenter of Messrs. Veitch's Royal Exotic Nursery in the King's Road, Chelsea, will in future remark a change in the front entrance. The glass erection where the Palms used to be staged has been demolished, thus leaving an open space before the walls of the office, which therefore now look on to the street. The visitor to the nursery will find less in flower than there was a little while ago, but the Camellias and early spring flowers, together with *Dendrobium aureum*, *Cattleyas*, *Cypripediums* (all in excellent health), *Moschosma riparium*, *Coleus thyrsoideus*, and *Jacobinia chrysostephana*, enliven the houses.

Fatal Accident to a Yorkshire Gardener.

On December 29 last Mr. John Findley, head gardener for Mrs. Heywood Jones, of Badsworth Hall, near Pontefract, met with a fatal accident whilst driving home from Pontefract. Mr. Findley was a faithful servant and a keen horticulturist, the gardens and glass houses under his care being always a credit to him. Fruit could often be seen in grand condition, and his *Calanthes* and *Malmaison Carnations* were a fine feature when in their season. *Poinsettias* and pot *Roses* were also well grown at Badsworth, and the general collection of plants under his charge showed care and good cultivation. *Chrysanthemums* were also a special feature, and many times Mr. Findley figured as a successful exhibitor at several of the local shows. He was highly respected by all the gardeners in the surrounding district, and his loss to the village of Badsworth will be keenly felt.—G. T. B.

The Gardeners' Royal Benevolent Institution

The sixty-fifth annual general meeting of the members and subscribers of this institution will be held at the Covent Garden Hotel, Southampton Street, Strand, London, W.C. (adjoining Covent Garden Market), on Thursday, January 21, 1904, at three p.m., for the purpose of receiving the report of the committee and the accounts of the institution (as audited) for the year 1903, electing officers for the year 1904, and for the election of twelve pensioners on the funds. The chair will be taken by Harry J. Veitch, Esq., treasurer and chairman of committee, at three o'clock. The poll will be open at 3.15 and close at 4.30 precisely, after which hour no voting papers can be received. Voting papers have been issued. Any subscriber entitled to vote who has not received a copy should communicate with the secretary at 175, Victoria Street, Westminster, S.W. The annual friendly supper of the friends of the institution will take place at the same place on Thursday, January 21, after the general meeting and election. The chair will be taken at six p.m. by Leonard Sutton, Esq., of Reading.

Devonshire Horticulture.

Mr. Berry writes: "Re page 7 of January 7 issue, 'Mr. Berry has been assisted by an extra lecturer, Mr. Huntley, of Somerset C.C.,' should be 'of Dorset C.C.'"

Horticulture in Prussia.

The Society for the Promotion of Horticulture in this portion of Germany will hold its great annual exhibition in the Bernburgerstrasse from April 29 to May 8 next. Communications should be addressed to the Secretary, Berlin N. 4, Invalidenstrasse 42, Germany.

Metropolitan Public Gardens Association.

The officers who so ably manage this most useful institution are making an appeal for funds in order to carry on their work. What that work is we hardly need to explain, for the monthly reports of its transactions are generally printed in our pages. The secretary's address is 83, Lancaster Gate, London, W.

Protheroe and Morris's Register.

We have received from Messrs. Protheroe and Morris, horticultural and general auctioneers, land and estate agents, of 67 and 68, Cheapside, London, E.C., their January Register of nurseries, market gardens, farms, florists' seed businesses, and partnerships to be let or sold.

The Small Holdings Act.

The Board of Agriculture have recently issued a return showing, from the introduction of the Small Holdings Act, 1892, to December 31, 1902, the extent to which local authorities utilised their powers under the Act for the acquisition of land. During this period of somewhat over ten years, eight County Councils in England and one in Scotland have acquired under the Act land amounting in all to 653 acres. Of this area, 32 acres have since been relinquished, while 248 acres have been sold, and 373 acres let to small holders. The average cost per acre of the purchase of land by the local authorities for the purpose of small holdings, omitting the transactions in London, varied from about £14 in Ross and Cromarty, and £23 in Cambridgeshire, to £70 in Devon, the average of 449 acres purchased being nearly £36. An average amount of approximately £2 per acre has been spent by the County Councils in the adaptation of the land for small holdings. In two instances the purchasers of small holdings have availed themselves of the provisions of Part II. of the Act to obtain from the County Council an advance to enable them to purchase.

Mr. A. D. Christie.

After a period extending for upwards of fourteen years as head gardener to the Marquis of Hertford, Ragley Hall, Warwickshire, Mr. A. D. Christie severed his connection at the end of last year. He was then presented with a beautiful marble timepiece, inscribed: "To A. D. Christie, from the Marquis of Hertford, Christmas, 1903." Mr. Christie's fellow servants at the Hall, the employés in the Gardens, and the members of the Arrow and Ragley Cricket Club (of which he had been treasurer for many years) presented him with a valuable English lever watch, suitably engraved, together with a silver chain and pendant, the latter being nicely engraved. No one was better known or more highly respected in South Warwickshire, and it is pleasing to note that the various horticultural and other societies have recognised the valuable services so cheerfully and willingly rendered by Mr. Christie as judge at their shows, as lecturer at their monthly meetings, and in a variety of other ways. His many friends in Alcester and district, at a public gathering in the Corn Exchange, presided over by the High Bailiff (Mr. E. A. Jephcott), recently presented Mr. Christie with a beautiful illuminated address framed in oak, together with a purse of sovereigns. From the passing of the Local Government Act until the time of his departure, Mr. Christie had been a member of the Arrow Parish Council, and in recognition of the faithful manner in which he had discharged his duties a resolution was unanimously passed expressing great regret at his resignation, and it was also resolved that the same should be recorded on the minutes of the proceedings. Mr. Christie is a thoroughly honest, conscientious, and sober gardener, and we hope that before long he will obtain another appointment. His successor at Ragley is Mr. Harding, for the last eight years foreman at the Royal Gardens, Sandringham.

The Late Mr. James Smith.

We regret to announce the death of Mr. James Smith, late head gardener at Hopetoun, South Queensferry, N.B., which occurred on December 27, at Hillview, Maryfield Place, Bonnyrigg, N.B. Mr. Smith was a highly respected Scottish gardener. He had suffered for a long time from sciatica, lumbago, and similar complaints.

Brighton and Sussex Horticultural Society.

In the annual report, the ordinary members' list shows a substantial increase, which is very gratifying to the committee. The Chrysanthemum Show produced a profit of £15 3s. 5d., which is somewhat less than usual, but the weather, although dry, was cold and cheerless. The working expenses of the year are about normal. It is gratifying nevertheless to the committee to be able to present a balance sheet showing a profit on the year's working of £32 12s. 9d., and a balance in the hands of their bankers of £193 14s. 6d.—W. B. and G. M.

United Horticultural Benefit and Provident Society.

The monthly committee meeting of this society was held at the Caledonian Hotel, Adelphi Terrace, Strand, on Monday evening last, Mr. C. H. Curtis in the chair. Seventeen new members were elected. The death of two members was reported (Mr. Charles Brown and Mr. Henry Sheppard). The secretary was directed to pay the amounts standing to their credit in the society's books to their nominees respectively. Three members applied to be allowed to pay the higher scale of contribution, which was granted. Nine members were reported on the sick fund. Messrs. W. Gunner and T. H. Puzey were appointed to audit the accounts for the past year.

A Small Holdings Scheme.

Mr. Tomkinson, M.P. for the Crewe Division of Cheshire, has given his constituents some details of a scheme promoted by himself, Professor Long, Mr. Spear, M.P., and others for bringing labouring men back to the land. They formed an association and bought a derelict farm of 365 acres at Newdigate at £15 an acre, with tithes included. Comprised in the purchase was an old manor house with a moat and some commodious farm buildings. The land itself is chiefly fine old pasture. They advertised that they were prepared to carve up the farm and sell in lots varying from three to twenty acres, and to meet individual requirements by advancing part of the purchase money. They had something like 1,200 applicants, and from these selected twenty-five whom they regarded as most suitable. They will pay the purchase money in ten years, 10 per cent. being paid on entering. They were also assisting to erect cottages for certain of the tenants. These are mostly people who have made a little money in other occupations, and, having regard to the fertility of the land, it is thought that they should do well.

Diaries and Memorandum Books for 1904.

Messrs. Dobbie and Co., Rothesay, present their clients with a neat "Memorandum Book and Pocket Guide to Gardening," with cultural notes on flowers and vegetables, as well as containing tables of distances at which to plant, or quantities of seeds to sow; and there are hints on "How to form a Horticultural Society and get up a Flower Show." * * Messrs. Baker's, seed merchants, Wolverhampton, have issued a neat diary bound in dark crimson leather, with a few lines' space for memoranda for each day of the year. There is also an insurance coupon enclosed for £1,000. The diary has a self-opening memo-tablet. * * The "Garden Life," publishes from Hatton House, Great Queen Street, London, an "Amateur Gardener's Diary and Dictionary." The Diary is for the office, not for the pocket, and its object is to point out when, where, and how the most popular garden plants should be grown. Reminders are furnished for each month, and there are blank pages for notes on "work done." * * "The Garden Diary" (George Allen, Ruskin House, 156, Charing Cross Road; cloth, 2s. 6d.; leather, 3s. 6d. net) is a book for he or she who would mellow the fragrance of the flowers with the beauty of poetry, for each day of the year has a chosen verse all to itself. The poets of times long past, as well as those of the present, are quoted, and with their names appear also the dates of their birth and death. The verses occupy the top half of the pages, and the space beneath is for "garden and Nature notes." We should add that Nature notes are likewise given. The authoress is Rose Kingsley.



The Chrysanthemum Analysis.

May I have space for my annual observations? The Analysis proves many things, and yet is not conclusive. Still, on the whole, it is interesting. The result shows that even some of our prominent growers do not agree as to the merits of what are the best dozen varieties. As with previous audits, so with this; I would point out certain varieties which several of these growers do not consider worth a place among the best fifty Japs. Some of the omissions may be accidental. If not, it means that there are some growers who do not understand the culture of our very best varieties, or are so far behind the times that their collections do not yet contain them, or perhaps they have not even noted them at some show.

The variety at the top of the Analysis was voted for by all. It could not very well be otherwise; but with so much good material to work on, at least a dozen others should be in the same position; that is, they should have received the full possible number of votes. Can it be believed that any up-to-date grower considers that there are fifty better varieties than the following, to say nothing of others: Mrs. Barkley, Mrs. Geo. Mileham, Madame P. Radaelli, Miss Elsie Fulton, Bessie Godfrey, Madame Herwege, and Ethel Fitzroy? All are of easy culture, have good constitutions, combined with good colour, form, and size; in fact, many more growers succeed generally with these than they do with the variety which tops the lot. It would be of very great interest to learn why these varieties were omitted by some voters. It is safe to predict that these will be standard varieties for several years to come, and may be really included in the best twelve.

The position of F. S. Vallis is remarkable, considering that it was only shown by two growers last season, and that the National Chrysanthemum Society only last season objected to recognise its merits by awarding it a F.C.C., the same society having more than once ignored Mafeking Hero, which also obtains a high position. It is curious to note that this variety (Mafeking Hero) and Sensation are ahead of Bessie Godfrey, which most growers will admit should not be so; but the last-named receives eleven votes as one of the best twelve new varieties, whereas Sensation is not mentioned in this class, yet both belong to the same set. It looks as if some voters considered Bessie Godfrey as a novelty, and did not put it among the fifty; whilst others considered it could not be classed as a novelty, although it was really a 1902 introduction.

Guy Hamilton, Mrs. E. Hummel, Loveliness, Princess de Brancova should have received more votes, for they will be with us for some time to come. Edwin Molyneux, which has hitherto been placed almost at the top, is now nearly at the bottom, and only retains a "place" by two votes. Still, there is nothing to equal it when it comes good, but most growers find it unreliable generally. I am surprised at that hideous variety, Madame Waldeck-Rousseau, being placed among the best fifty. It has been seen once or twice in fair form and of large size, but the colour was that of the bottom of an old boot. It is of weak growth and difficult to "do," perhaps even more so than the preceding variety.

Four years ago I stated that Marquise V. Venosta should have been placed higher. It has gone up, but in face of more recent arrivals should now be discarded. The past season has suited it, but it has only size to recommend it. Mrs. H. Emmerton should not find a place among the best fifty, and Geo. Lawrence will probably receive a fall after a season of normal conditions. Mme. Naegelmackers is already among the fifty, and it will go higher yet. It was seen in excellent form at the Crystal Palace Show, being in the first prize exhibit in the Vase class. The Floral Committee did not, however, consider it worthy of a F.C.C. Still, it will be interesting to note whether the decision was justifiable. Much more could be said, but space will not permit.

The class for twelve varieties of 1902 and 1903 is not definite enough. Bessie Godfrey, which was sent out during the spring of 1902, is the only variety of that year which is mentioned at all in this audit. The voting produces a ridiculous result. Miss Mildred Ware here receives twenty-seven votes, although the number of votes are much less than in the fifty class, when the same variety, with forty voters, only gets seventeen votes. Let

us put their position side by side, and note how absurd it works out:

1902 VARIETIES.	By 40 Voters.		By Less Voters.	
	BEST 50.		12 NEW.	
Mrs. Geo. Mileham ...	38	...	0	...
Sensation ...	36	...	0	...
Bessie Godfrey ...	35	...	11	...
Ethel Fitzroy ...	31	...	0	...

and several others of this year.

1903 VARIETIES.				
F. S. Vallis ...	37	...	19	...
Mrs. F. W. Vallis ...	18	...	24	...
Miss Mildred Ware ...	17	...	27	...
Henry Perkins ...	16	...	22	...
W. Duckham ...	10	...	10	...
Miss Olive Miller ...	10	...	16	...
Geo. Penford ...	9	...	19	...
Mary Inglis ...	8	...	5	...
Lady Mary Conyers ...	7	...	14	...
Lord Hopetoun ...	8	...	8	...
Alfriston ...	2	...	8	...
Geo. Mileham ...	6	...	10	...
S. T. Wright ...	6	...	0	...
Donald McLeod ...	5	...	7	...
Mrs. A. K. Knight ...	7	...	0	...

When I touch on the novelties for the coming season I am on dangerous ground, and for obvious reasons can say but little; but I would ask whether it is not a mistake to have these included. How many of the forty growers can have seen the novelties, and are in a position to make a comparison? Very, very few indeed! It must to a great extent be "hearsay" knowledge only. Five varieties are mentioned, with Lady Cranston heading the list, and, of course, this position will not be disputed; but the position of Beauty of Leigh is surprising indeed. Tastes differ, but I have seen it throughout the season, both early and late, and it had every good quality, size, form, fulness, and richness of colour. Quite true, it has not been seen in picture form so often in the various papers, but it was seen in excellent style at the Crystal Palace. Mayhap few only of the fifty voters attended this show. Lady Cranston, great beauty as it is, has not yet been illustrated in the horticultural papers.

But let us examine the 1903 varieties. Here we have, out of forty votes, only seventeen who consider Miss Mildred Ware should be included in the best fifty, whilst a considerably less number partaking in the election gave it twenty-seven as the best new variety. Seventeen only vote for Mrs. F. S. Vallis in the first-named class, and twenty-seven in the second. On the other hand, thirty-seven votes are recorded for F. S. Vallis as one of the best 50, and yet only nineteen as a new variety. Lord Hopetoun is not mentioned in the fifty list, and yet obtains eight votes as a new variety; whilst S. T. Wright gets eight in this class, and is not mentioned among the best fifty. I would express the opinion that Mrs. F. W. Vallis, S. T. Wright, F. S. Vallis, Miss Olive Miller, Geo. Penford, W. Duckham, Alfriston, and possibly others, should have been placed above Miss M. Ware. This variety was well boomed, but is considered by many to be too soft, and the colour, pretty as it undoubtedly is, soon fades and becomes insipid. Lady Mary Conyers in one place, and "Lady Couzens" in another, is probably intended for one and the same variety.—W. J. GODFREY.

Mimuli for Garden Beds.

We trust that even such humble flowers as these may be thought to be sufficiently beautiful to merit a special notice in the Journal, for they, like the gorgeous and charming Tom Thumb Tropæolums (Nasturtiums), are apt to be put to one side, in out of the way places, in the higher class gardens. We think this is a fault to be guarded against, for a bed of selected Mimuli such as Dobbie and Co. possess, is as beautiful and almost as interesting as an Auricula bed in spring.

Of the Monkey Flowers there are forty species, and they vary considerably. *M. cardinalis* furnishes a very bright flowering plant for summer beds and borders, or for pot culture, to flower in springtime in greenhouses. *M. moschatus* is the well-known, fragrant Musk of our cool houses, and is used for carpeting sub-tropical beds. The *M. luteus* varieties delight in a moist, cool, humid soil, and seeds should be sown on the surface, and not covered, unless within the finest dusting of sifted soil.



Varieties of *Mimulus luteus*.



A Medley in Poppies.

No one delights more than I do in the beautiful form and gorgeousness of colour in the species of *Papaver* (Poppy) together with the "Shirley" race, the new "Iceland" strain, the well-known *Pæony*-flowered varieties (selections from the Opium Poppy), and within these limits might we not rest content? for surely the variations are curious enough and sufficiently numerous. Yet I observe in the report of the Poppy trial at Chiswick in 1903, 125 stocks were sent in, and there were *Murselli flore-plenos*, *Ranunculus*-flowered, *Pæony*-flowered, Japanese pompons, "Cardinals," and Carnation-flowered. To what extent are the differences between these various so-called types permanent or definable? To me, though it may be my ignorance, the hair-splitting distinctions are worse than absurd.—BEFOGGED.

Happy-Go-Lucky Fruit Culture.

I myself have often a feeling akin to that expressed by "Patriot" in last week's Journal; and I, at any rate, thank him for mentioning my lovely adopted county of Devon. However, I fail to see in what way the "papers and the County Councils' instructors" can be of service to a gentleman who has sense enough to ask for the rightly named railway ticket that will take him to Paddington or to Waterloo, but does not exhibit the same sense as to the trees that must bring him loss or profit. Many men have consulted me before taking any steps in improvement of old plantations or making new ones, including the present Duke of Bedford's advanced tenants. Some seven or eight years since Mr. Tillicrapp, farmer, Netherbridge, near Launceston, attended my lectures. He greatly improved his orchards by pruning the old and planting new trees. He afterwards consulted me about a field for making into an orchard. Well known named sorts were planted, including Warner's King, Blenheim, Bramley, Alfriston, and Cox's Orange Pippin. I inspected the work, and I know that it was done well. In the same parish (Werrington) Mr. John Ambrose Reed, yeoman, Collacott, would tell the tale of improvement in his orchard. If "Patriot" would like more instances, when he is again in this way I shall be pleased to give them. My article in the *Journal of Horticulture* on "Devonshire Orchards" (March 19, 1903) indicated decided improvement. That article was copied by the Devon Press.

The worker in my subjects in Devon is not equal to the demand made upon his time, and places will have again to stand over till 1904-5 session. Quite recently I had an average attendance of nearly forty, many of whom were farmers and their sons. This was in a parish with no village, in the ordinary meaning of the word. So far for orchards held by farmers. Now for gentlemen who plant. One, in the autumn, wrote for advice and help. The gardener had never planted trees in the manner in which he planted that new orchard. The gentleman said somewhat thus to me: "That was expensive work, but I had faith in your judgment, and I see it is feasible." I selected the trees, the orchard was measured by me, and the holes were dug under my instructions, and the manures applied, farmyard and chemical. If "Patriot" calls I will show him this orchard, if I be free.

Then he asks: "What good will Government Departmental Committees of Inquiry do, in the face of such Fuegian obscurity?" I cannot tell, because his word is so obscure to my poor self; and my dear "Ogilvie," of 1,294 pages, does not explain! Perhaps I am more in "want of knowledge" than that poor, unfortunate gentleman whom "Patriot" met in the train. [Fuegian—The inhabitants of Tierra del Fuego are "obscure," being grossly ignorant of the outer world.—Ed.] But I do know that, if the Committee appointed by the Government care to ask about the Devon Committee's work in horticulture, Mr. Garnsay, the newly-appointed secretary, who visited Devon last winter, can give a most hopeful account of progress in fruit culture.

For some time previous to the Franco-German War of 1870 the French Ambassador at Berlin sent regular and detailed information to Paris, warning his Government that they were not at all equal to fighting the well-prepared Germans. If the instructors in horticulture be as faithful as that French Ambassador, they do their duty well. The French Government, it is now well known, ignored the letters of their faithful servant,

and the capitulation of Metz resulted. Will that gentleman who bought thousands of pigs in a sack (I beg his pardon, trees, I mean) some day, too late, learn better? Cheer up, "Patriot"! "The clouds you so much dread are big with mercies, and will break in blessings on your head," but not, I fear, on your friend's head until he learns to know what he is doing.—X.

Methods of Teaching.

I read with interest the note on the teaching of horticulture (page 600) in describing Mr. C. Hott's system. I have but a poor opinion of reading papers to an audience, and not a very high one of displaying diagrams. I am also aware that the latter method is at times the only one of illustrating certain subjects and points in those subjects. Where, however, it is possible, I approve the more practical and instructive methods such as employed by Mr. Hott. For instance, a lecture is to be given on fruit culture; how much more instructive and interesting it is for an audience to see the actual trees operated upon. Take a small tree—a wild Cherry will suffice—show how to prune the roots, cut the head back the first and second years, and with branches show the results in after years of close pruning, no pruning at all, and so on. My experience is that listeners like to know how *not* to do certain things as well as they do the proper methods, and no system of teaching, I am positive, equals the employment of natural branches and material generally. Even the simple operation of staking a tree is much more effectual when witnessed than when illustrated on a diagram or any other means. The same when dealing with Vine culture; a piece of a rod from a properly managed Vine as well as the reverse will teach infinitely more than all the talking possible.—A LECTURER.

Trade v. Private Exhibitors.

I am very glad to find there is someone who realises that the private grower can, and should, compete against the trade growers at exhibitions. All the more honour to the private growers if they win. And why shouldn't they win? The private man, or his gardener, have the same facilities for studying the nature of any particular flower, exactly in the same way as the trade grower. It is an absurd idea to think that it is no good exhibiting against any particular individual, as that particular person is sure to win. Why does he win? Because he has studied the proper treatment of the plant, while others, in too many cases, expect their flowers to grow fit for exhibition without studying their nature! Every opportunity is given to the large or small grower of exhibiting flowers, whether private or trade, and it is only necessary that the conditions should be sufficiently binding. The big man should not be able to compete against the small one, as the latter would naturally not have a large enough selection. A flower grown well is a pleasure, and one grown badly is an eyesore to anyone calling himself a florist or lover of flowers.—E. J. W.

It would appear from the remarks of "E. M." that he considers my few words as a concession of dignity on the part of private gardeners. That may be so to such men as "E. M.," who, in all probability, have had unlimited means at disposal to compete with the Trade. But contrast his less fortunate brother in the fraternity. Although a first-rate grower of Chrysanthemums, he must be content to spend a few shillings yearly on the purchase of up-to-date varieties, with the object of putting up for competition 12 or 24 blooms at his local show. He is also compelled by various reasons not to exceed one or two hundred plants against the trade grower with his thousands, including the newest and best varieties. One need say nothing of the extra time spent in evenings on them, as is the case with a few gardeners I happen to know; and all to be swamped by the preponderance brought to bear by the Trade, and possibly only by a few points. And "E. M." asks, Why should a tradesman not compete? The reasons, I hope, will be obvious to all with a keen sense of justice. Of course, I quite agree with "E. M.'s" remarks respecting Mr. Chandler's gratification and the honour due to him when he beat Mr. Vallis at Bradford in November last—but how often does it happen in a similar way? Very seldom, which goes all the more to prove the inequality in the generality of cases. And to make the remark that the tradesman's glass accommodation is insufficient—I question it very much. Then again, Why, even if the Trade do not compete, are the public deprived of their knowledge? Trade growers such as Norman Davis, Wells, Godfrey, and Jones often show "not for competition," and are the public then deprived of their knowledge? Will "E. M." kindly inform readers if he thinks it an absolute necessity for nurserymen to compete with private gardeners,

and why? He says good cultivators of Chrysanthemums in the Trade are an exception. I say let them compete more against each other, and then we shall see.—FAIRNESS, Liverpool.

Chrysanthemum Critique Controversy.

I refrained from replying to "Sadoc's" remarks on page 579 on your issue of December 24 until I had seen the result of the audit. I quite admit that my scope of practical observation is not as extensive as I should like, nevertheless I grow about 200 plants each year, and usually see some of the leading collections in various parts of the country. Last year I visited over thirty of my friends, several of them on more than one occasion, comparing notes carefully with each of them, and my voting paper for the last audit included 42 out of the first 50 Japanese, 31 out of 36 incurved, and 8 out of the 12 novelties, which last number would have been 9 had I thought Bessie Godfrey came under the heading of novelties. I simply quote these figures to show that my judgment coincides fairly well with the other thirty-nine voters. It is passing strange that W. R. Church should head both the list of "Sadoc's" non-successful varieties and the list of the 50 best Japs. "Sadoc" says: "He that wins hesitates not."

The forty electors would all apparently hesitate before discarding W. R. Church. Has "Sadoc" any variety to suggest in place of W. R. Church? Mrs. J. Lewis under the different climatic conditions of 1901 was exceptionally fine everywhere, and what blooms of this variety I saw exhibited last year, in my limited judgment still entitle it to rank amongst our very best whites, and except that it wants a little more coddling in its early stages than some varieties, is a fairly easy one to grow. Given a normal season, I expect to see as good blooms of Mrs. J. Lewis as ever, also of Mrs. Barkley and J. R. Upton. Like "Sadoc," I would ask the, to me, unanswerable question: How can a list of fifty varieties be made up without them?—A. H.

The Weather of 1903.

The several rainfall tables published on page 19 serve to remind your readers how varied is the amount recorded by the observers whose names and districts are given. The measuring of the rain is a most interesting, and, indeed, a valuable study for the gardener, and one has only to consult "British Rainfall," published for so many years by the late Mr. Symons, and now by Dr. Mill, to learn what a large and increasing attention is paid to this daily routine. Not only should the rain be measured, but temperatures also, which, if they do not serve any practical purpose, are nevertheless most interesting for comparative references. "D. C., Hamilton," bewails the fact that of the 365 days, 185 were wet. Though we cannot rise to such figures as 55.52in, we can go one better in numbers of wet days, namely, 189. "D. C." might have given his table showing the monthly measurements.

In the Thames valley, where floods were so severe, one would almost have expected a higher score than Mr. George Groves gives from Temple House. The number of wet days enumerated there is remarkable; yet the total is nearly an inch less than our record with 189 rainy days. The average for the eight previous years here is 26.82in; thus the excess of 1903 is 18.98in. There were sixty-two frosts during the year, thirteen of this number being in April, and one on May 13.

The highest temperature (90deg) occurred on July 11, the corresponding minimum, 12deg, or 20deg of frost, happened on January 15. It is noteworthy that during the hottest days of the summer the night temperatures should read so low. On four days from July 7 to July 14 the thermometer fell to 40deg, cooled by a north-westerly wind. October seemed universally wet. At Alton Mr. Yates' record is 11.37in; Glasgow district, 8.29in; at Temple House, 8.83in; and at Rood Ashton, 7.49in.

The year 1903 may be said to have created a series of records throughout its course: they were so numerous that their record would take up much space to recount, even in an horticultural aspect. A few prominent ones may be summed up thus: rain, frosts, slugs, weeds, abnormally small fruit crops, and higher coal and seed bills.

These are only a few; but they are ample to make one shudder on a summarised reflection, for the high cost of upkeep and smaller returns from the garden tend to disturb both the pleasure and profit of horticulture, viewed from its several economic aspects. For several years there has been a weakening of ground springs, and a dearth of water has been an outcry both from rural and town population. The ample rains of 1903 will for a time, it is hoped, remove these troubles, and at the same time fortify those trees whose roots work deeply into the hitherto dry regions of the earth's surface. Though the excess of rain has called forth so universal an outcry, its influence will assuredly be accredited.—W. S.

Gadding and Gathering.

Radium.

On Sunday afternoon, January 10, Dr. W. R. Hampson delivered a lecture on radium, in the Alhambra Theatre, London. There was an excessive demand for seats, and the audience heard the lecturer with steadfast interest for an hour and a half. Radium is a substance extracted from pitchblend and other rocks, and its extraordinary minuteness may be judged from the fact that to obtain half a thimbleful of it eighty tons of material had to be treated with fire and acids. Its estimated value is £90,000 per ounce. Radium has the remarkable property of constantly emitting light and power (heat) for years and years without perceptibly losing weight. Dr. Hampson said that theory bid them believe, however, that it must lose weight, even though the finest chemical weighing scales had not been able to register any loss in the few years in which radium has been known. He said that the radium emanations became transmuted into helium, which has hitherto only been known as existing in the sun; for radium emanations, when transmuted in tubes of liquified air, give exactly the same spectroscopic registration as helium. This is very remarkable, and is a line for further investigations. With reference to diminution of the weight of radium, the lecturer stated that if three or four pounds of the substance were procured, and could be tested after a lapse of ten years, doubtless an infinitesimal loss would be registered.

The discovery of radium by Madame Curé (a Polish lady by birth, and wife of the distinguished French savant) had demolished Dalton's theory of the indestructibility of atoms—a theory which had been a very useful one to scientists for the last hundred years. Hitherto it had been thought that the atom was the ultimate particle of matter, but the study of uranium, radium, and similar subjects in recent years had led to the abandonment of that belief.

By simple experiments Dr. Hampson showed the varying powers of volatility possessed by water, chloroform, ether, and carbolic acid, as evidenced in the different times taken by each to evaporate or "dry up" when poured over paper. The "drying" process simply meant that the molecules of ether or chloroform had greater energy and power of emanation (i.e., jumping up or flying off) than those of the water. So, with radium, its energy—its power to throw off light and heat—was estimated at from 3,000 to 1,000,000 times as great as that of any combustible or volatile commodity hitherto known. The power possessed by half a thimbleful of radium is sufficient to raise 500 tons one mile high.

At present it is premature to speak of the possibilities of its practical utility. It has been applied in light cases of cancer, and has appeared to perform a cure. The pathologists' theory is that as radium emanates heat and light with terrible and never-ending energy, it kills the disease "germs" in the tissues. In one sense its power is allied to that of the Röntgen rays. It is a significant fact that Monsieur Curé's arms were spot-burned in places by his experiments upon himself, and that these spots took a very long time to become whole again. The scientists say that if they can learn to control the transmutation of radium in one form (the comparatively useless) into another (which is eminently useful), a great gain will be ensured to the world of science and industry.

Offices, Laboratories, Workshops.

Those who are constantly passing between the Strand and Fleet Street, London, will doubtless have noticed the recent erections of corrugated iron houses a little higher than where Dane's Inn is. Aldwych, which is one side of the new crescent, though as yet unbuilt, has its course already paved for a distance of some hundred yards or more. Facing this new paved way are these buildings, which are being prepared as the printing offices, for eighteen months to come, of the "Morning Post" newspaper. The builders are Humphreys, Limited, of Knightsbridge, S.W. These erections are very cheap, and very durable. They are light, very strong, convenient, and can be made quite ornamental. The basement, and for two feet above the surface of the pavement, is of cement, with a level top. On this top lies a stout wooden beam, the whole length of the building. Uprights of a suitable breadth and stoutness (in this case seemingly 1½in planking) are set upon the horizontal beam, and another beam lies along their upper ends. Thus the framework is of fairly stout timber, and the windows and doors occupy considerable space. When these are fixed, concrete is filled into the interspaces, parallel boards, of course, being placed face to face a couple of inches apart—that is, flush with the outer edges of the uprights—so as to form a mould in which the cement sets, the boards being then taken away; but gravel or spar is first pressed thickly and evenly into the concrete surface.

Stage by stage this cementing business is completed, and cross or horizontal pieces of planks are laid flat and tightly between the uprights aforementioned, these cross pieces being 3ft or 4ft apart, one above another. The interior side of the walls is made of corrugated iron nailed to laths, so that there is really an outer or front wall, say 2in thick, of concrete and

timber planks, and an inner corrugated iron facing, leaving 4in of vacant space between. The roof is of corrugated iron. Such houses could practically be made by estate men, for they are of very simple construction.—WANDERING WILLIE.

Raising Tomatoes.

Those who require ripe Tomatoes very early in the season must, of course, practise autumn sowing, but the majority of cultivators are content to wait till January before inserting the seed, because they know that from that time onward the young plants grow steadily and sturdily, with comparatively little trouble, and produce good crops in less time from the date of sowing than autumn sown plants. Given the necessary amount of heat, and suitable treatment in other respects, raising large batches of Tomato plants early in the year is by no means a difficult matter, and yet I have seen dismal examples of failure through failing to attend to a few simple yet necessary matters. The first essential is to get sweet soil free from minute insects, because under the best of conditions root action is not particularly vigorous early in the season, and anything which tends to check it in the slightest degree may be fatal to the young plants. I have always found it an excellent plan to partially burn all soil intended for sowing seeds in early in the season.

This can easily be done by placing it for a few days in a stovehole on the top of a boiler at work, and turning it a few times. If everybody would adopt a similar plan, half the difficulties connected with raising tender seedlings would disappear. For Tomatoes a suitable mixture is equal parts loam and leaf soil, with a little sharp sand and wood ashes added. Prepare pans or shallow boxes by draining them with an inch layer of cinders or broken potsherds, fill them to within an inch of their rims with the prepared compost, which should be pressed moderately firmly with a board, or anything with a smooth surface.

Sow the seeds thinly and just cover them with soil, or, better still, insert them with a "dibble" an inch apart. Give one thorough watering through a rose, cover the surface of the receptacles with glass, and stand them on a bed where there is a slight bottom heat, or on the hot-water pipes in a light house where a temperature of from 60deg to 65deg is maintained. So soon as the seedlings push through the soil, place a stone under one end of the glass to admit air, and the following day set the boxes on a shelf near the glass, and remove the loose squares of glass entirely at night. Under this treatment the seedlings will come along sturdily, and before they get crowded should be transplanted.

It is at this stage that the inexperienced often make a mistake which proves a costly one. The error consists of transferring the young seedlings from the seed-box to 3in pots. Under favourable circumstances, with every convenience at command, and fine clear weather, this may sometimes be done with good results, but I have proved over and over again that a far better plan to adopt is to prick out in boxes 2in apart, and then when the plants have become well rooted, pot into 3in pots, and eventually into 4½in or 5in ones. The reason for this is that the weather in the depth of winter is often cold and misty, and the young plants establish themselves much more quickly in shallow boxes than when each is given a separate pot; indeed, in some cases when the latter plan is followed they get stunted, or die off entirely. The pricking off before potting entails a little extra labour, but good plants are ready for planting in their permanent position at an earlier date than when less trouble is bestowed upon them.

In these early stages, keep to the burnt soil, and thus take no risks in regard to insects. In all instances keep the plants near the glass in a light position, to prevent them from becoming in the least drawn. Usually after having been pricked off and started in the fresh soil, a slightly lower temperature should be given if the days are bright; 55deg to 60deg is a suitable night temperature, as the days by that time are lengthening, and the pushing on should be done by day rather than night.

Careful watering should of course be practised in the early stages. On dull days a slight "dewing" with the syringe will often be preferable to a thorough watering, but when the plants are thoroughly established and the weather is bright, it is an easy matter to keep them drier at the root than is consistent with their welfare.

A suitable time for setting plants in cool houses is the middle of April, and the middle of February will be soon enough to sow for this purpose. To raise plants for the open air the first or second week in March is an excellent time to sow. For growing in the open air I have not found anything to beat Holmes' Supreme. This variety is also one of the best market kinds for indoor culture. Two other good ones for private gardens are Dobbie's Champion and Best of All. For early crops Winter Beauty is hard to beat. All who can should give the new Lord Roberts a trial.—H. D.

Societies.

R.H.S. Scientific Committee, January 5th.

Present: Dr. M. T. Masters, F.R.S. (in the chair); Messrs. Gordon, Baker, Saunders, Hooper, Veitch, Hndson, and Massee; Drs. Cooke and Rendle; Prof. Boulger; Revs. W. Wilks and G. Henslow, hon. sec.

Pear shoots diseased.—Dr. Cooke reported upon some samples sent by Mrs. Cure, of Coombe, Oxon. They were attacked by *Cystospora* in patches. This fungus would subsequently pass into the *Eupatella* stage. The trees should be sprayed with Bordeaux mixture at intervals, and if this was unsuccessful, the places should be cut out and burnt, the wounds well protected with tar.

Proposed scientific investigations at Wisley.—The following was the substance of the reply received from the Council to the communication addressed to them by the Scientific Committee on this subject: The Council saw the desirability of almost all that was urged therein, and they hoped that the day is not far distant when much of it may be accomplished. They felt sure, however, that the Scientific Committee would understand that all the desirable things cannot be carried out simultaneously, and that financial considerations compel them to see the new hall finished and paid for first.

The Codlin moth.—Mr. Hooper raised the question as to whether the grease bands, if kept till the end of May, would catch the caterpillars at that time. It was the opinion of Mr. Saunders that the caterpillars would not have left the Apples in May; but Mr. Massee observed that there is a spring brood in America, but he was not aware of its existence in England, and recommended observations to test the fact.

Camellia leaf diseased.—Mr. Saunders showed specimens badly attacked by *Pestozia Guepini*, a fungus which damages the Tea plant. It has been known here for the last fifty years. Spraying would only partially arrest it, as the fungus is below the epidermis.

Orchids malformed.—Mr. Bidgood, Saltwell View, Gateshead, sent some excellent coloured photos of Orchids, showing certain peculiarities: (1) An *Odontoglossum citrosum* had the basal flower of a spray with two well formed columns, three labella, and eight other perianth segments. The ovarian section had no ovary cells, but numerous clusters of fibro-vascular cords, showing that it was a "multifold" flower, the cords of each perianth-segment branching and entering two, instead of a single segment; so that, excepting one, all the parts of the perianth were doubled. (2) *Phaius Humblotti* × *P. Wallichii*, received from Mr. Cookson's collection. One photo showed the inflorescence, one flower of which had the lower portion of one of the lateral sepals petaloid like a labellum; the placenta of the ovary next to the position of the labellum was absent. A second flower had no labellum, the lateral sepals were fused, making one wide, median sepal, and both the lateral petals were slightly labellate.

Scottish Horticultural Association.

The annual business meeting of this association was held on the evening of Tuesday last, the 12th inst., in Dowell's Rooms, Mr. McHattie, president, in the chair. The meeting was very numerously attended, about 150 members being present. Thirty-six new members were proposed for election. The secretary read the report of the council for the past year, which showed that in all departments of its operations continued most successful. The membership had increased to the large total of 1,295. The papers read at the monthly meetings had been of a most interesting and instructive character, and the meetings had been very largely attended. The Chrysanthemum Show had been most successful, notwithstanding the unfavourable nature of last season. The competition had been keen, and the quality of the show all over was equal to any previous show.

The financial report was read by the treasurer, and was also of a most favourable nature. The total income of the Chrysanthemum Show amounted to £1,253 16s., and the total expenditure to £1,225 2s. 7d., leaving a credit balance of £28 13s. 6d. The income of the association amounted to £224 2s. 9d.; the expenditure to £127 2s. 11d. The total balance on the year's proceedings amounting to £125 13s. 6d. The total balance at the credit of the association now amounts to the magnificent total of £1,104 5s. 6d.

Mr. McHattie was re-elected president for the coming year. Mr. A. Mackenzie, Warriston Nurseries, and Mr. Sclater, 15, Princes Street, were elected vice-presidents. The vacancies in the council were filled up. It was unanimously agreed to vote the sum of £60 towards the prize fund of the Royal Caledonian Horticultural Society for the International Exhibition of 1905. It was also agreed to contribute £5 5s. to each of the following charitable institutions: The Royal Gardeners' Orphan Fund, the Gardeners' Benevolent Fund, and the Royal Infirmary of Edinburgh. A vote of thanks to the president brought a most enthusiastic meeting to a close.

Horticultural Club: Experimental Gardens of the Future.

Subsequent to the usual monthly dinner of the above club, held on Tuesday, the 5th inst., at the Hotel Windsor, under the chairmanship of Mr. Harry J. Veitch, Mr. George Gordon, V.M.H., in a very interesting paper, gave expression to his views as to the lines upon which experimental gardens should be conducted. The large majority of horticultural societies, outside the "Royal," took, he considered far too narrow views of their functions, confining themselves almost entirely to exhibitions, and doing little or nothing to contribute to experimental knowledge. Mr. Gordon considered that a minimum area of about thirty acres should be devoted, in various parts of the country, to the cultivation of fruits and vegetables in conjunction with standard types of recognised superiority, without which little is to be learnt. A garden on these lines would then form

same. The various forms of training should also be shown on up-to-date lines for educational purposes, and new things should be tested side by side with old ones and under same conditions to secure fair comparison of merits. Mr. Bunyard and Mr. S. T. Wright remarked that the experiments at Chiswick had been conducted for some time precisely on the lines indicated, at the same time they and others cordially appreciated the necessity pointed out by Mr. Gordon that students who really mean to adopt horticulture as a profession must begin at the bottom, and be prepared to work hard, and to keep early hours. Too great a tendency was pointed out in the students to treat the business in a dilettante fashion, which would never result in horticultural laurels—at any rate, of the honourable type. To a very large extent indeed, the moral of the paper was the need of thoroughness first of all in arranging the proper basis of the experiments themselves, next



Double-flowered Cherry.

an educative centre for attendant students. The cultivation of inferior forms was strongly deprecated; but in the subsequent discussion, in which Messrs. Bunyard, Monro, Wright, Bilney, H. Veitch, and Molyneux took part, it was pointed out that in this latter respect the public were largely to blame, since they would not accept the experts' assurance of superiority of certain varieties, but insisted on receiving old-fashioned and inferior ones which consequently had to be grown to meet the demands. The importance of making all comparative trials on the same kind of soil was insisted upon as very misleading.

Mr. Gordon also advised care in sowing seeds, say, of successional Peas at different times, but Mr. Bunyard stated that in his experience seed of early, medium, and late Peas, all sown at the same time in February, asserted their periodicity all the

in carrying them out and making systematic records of results, and lastly, but not leastly, of earnest work and conscientious study on the part of the young men whom it is desired to educate as the gardeners of the future.

DOUBLE-FLOWERED CHERRY.—The above illustration depicts a branchlet of this beautiful flowering tree—a tree, happily, that is well known. It is a most effective tree for the ornamental grounds, or for small villa gardens. *Prunus pseudo-cerasus* Watereri is another fine variety, with pink flowers; and the recently introduced James H. Veitch is also charming, the flowers being intense deep rose. The trees like a fairly moist warm soil and sunny situation.



Pear, Fondante de Thirriot.

This is a large dessert Pear, with very handsome fruits of the finest flavour, sweet and melting. These are in use during November and December, or even a little later in the North. The tree is a good grower and generally fruits heavily, as our illustration shows. As a market variety it has a high repute, good fruits fetching long prices.

My Fruit Farm in 1903.

The following interesting letter is from the "Westminster Gazette" of December 22:

"The area of my fruit farm, after allowing for space occupied by house, barns, road, paths, &c., is, as nearly as possible, five acres. Two acres and a half are occupied by Cobnuts, among which are some fruit trees and Currant and Gooseberry bushes; an acre and a half by Apples, Plums, and Pears; and an acre by kitchen garden, where again there are some Apples and Plums. The soil is light, in some places almost pure sand; the height above sea level varies from 420ft to 380ft.

"Without further preface I will give the results of this year's farming. Eleven hundred and fifty pounds of Cobnuts brought in £27 10s. net (i.e., after paying carriage and commission). This works out at 5½d. per pound. By sending some to provincial towns I obtained a better price than could be got in Covent Garden. For twelve bushels of Apples I received £4 17s. (many of these were sold to friends and neighbours whose gardens were absolutely bare of fruit), and for five bushels of Plums £3 13s. (two-thirds of this came from half-a-dozen Damsen trees). Finally, the kitchen garden brought in £29 2s. 6d. Probably this sum is somewhat in excess of value received. A fixed sum is paid for fruit and vegetables consumed in the house, and I am pretty sure that the house did not receive its money's worth. Now for the balance-sheet:—

	£	s.	d.		£	s.	d.
For Nuts	27	10	0	Labour, pruning, &c. ..	19	10	0
" Apples	4	17	0	Manure	7	10	0
" Plums	3	13	0	Rates	2	4	0
" Kitchen garden ..	29	2	6	Tithe	0	18	0
	£35	2	6		£70	2	0

"It will be observed that nothing is allowed for interest on capital expended in the purchase of the land. This may be put down at £30 (4 per cent. on £750).

"The item for labour may seem high. Pruning cost a considerable sum; it would be a mistake to attempt a saving in this item. Probably the hand-regularly employed could have worked a large area; on the other hand, nothing has been put down for the labour of members of the family. It will be interesting to give last year's figures:—

	£	s.	d.
Nuts (6,300 lbs.)	72	6	4
Apples (56 bushels)	15	5	0
Plums (10 bushels)	3	5	0

The kitchen garden was in process of making.

"The Nuts, it will be seen, were a very large crop, and, though the price was low, they made a good return. The price of the Apples works out at 5s. 6d. in 1902 and 8s. 1d. in 1903. Only the eating Apples fetched a good price. Cooking Apples of even the best quality, as the Warner Kings, in spite of the scarcity, fetched little more than usual. By the time they are ready the markets are flooded with American and Canadian produce. With the Plums it was different. Five bushels fetched almost as much as ten last year; but then Plums do not bear transport very well. It is premature in a person with so short an experience as I have to form conclusions, but I feel sure that an English fruit farmer must rely on growing good and early kinds. To show that my experiences are not exceptional, I may add that I bought my neighbour's crop of Apples and Plums for £8. Last year he sold it for £55.—A. J. C."

A Famous Elm Tree.

The famous Sully Elm, which was known to be over three centuries old, and stood in the vicinity of the Church of Saint Jacques du Haut Pas, Paris, had recently to be cut down owing to its decayed condition. The wood was cut into logs and offered for sale the other day. There was keen competition to secure the historic wood. The famous Elm has, however, not been entirely destroyed. The dead trunk, to the height of about thirty feet, has been left standing.

History of the Potato.

The Potato is one of the greatest blessings bestowed upon mankind; for, next to rice, it affords sustenance to more human beings than any other gift of God. It has been impiously called the curse and the Upas of Ireland; but the abuse of the blessing is the curse, and it is as unjust thus to condemn it as it would be to anathematise iron, because man has formed from it the rack and the thumbscrew, as well as the ploughshare, the loom, and the compass.

The Potato is a blessing so long as it is only a subsidiary food of a people; adopted by them, as in England, as an aid, or resource, when other better food is deficient, and as a diluent, or corrective, of grosser animal nutriment. No man in a mild or torrid climate can live healthily upon a preponderating animal diet; and it is for the purpose of giving the quantity required for appeasing the sensation of hunger that such food as Potatoes and rice are so beneficial.

In Ireland this cheap produce has become the chief, the staple, food of the inhabitants; and, as the staple food of a people regulates the price of wages paid for their labour, wages have become so low in that country, that when a dearth of Potatoes occurred, the day's earnings were not sufficient to purchase a day's sustenance of dearer food. But why did the Potato become the staple food of Ireland? Simply because the priest and the middleman in days now past encouraged the division and subdivision of paltry holdings into others still more and more miserably small. This subdivision of farms, says Mr. Macculloch, has been both a cause and a consequence of the use of the Potato as a principal article of food. A small farmer, or even proprietor, with five, ten, or fifteen acres of land, cannot afford to feed himself and family on bread and beef. He is compelled to resort to inferior food; and as the Potato affords the greatest quantity of nourishment from a given extent of ground, to that he naturally resorts; and this facility of obtaining support tempts to a further division of the holding. Such have been the consequences of the extreme subdivision of landed property in Ireland; and it has been fostered by the priest and the middleman, because each fraction of a holding is productive of further fees and increased rentals.

Where, as in England and Scotland, the Potato ground is only the poor man's aid, not his all, it is indeed a blessing; and it is told in these few words of an allotment tenant: "There are but few days in the year sir, on which we cannot get a meal's help from it." Most assuredly therefore do I think that the descendants of Raleigh might be proud of a sprig of the Potato foliage on their coat of arms as those of Appel de Kapoesang are of its tubers with which the Austrian heralds have charged their shields;* and it is with the hope of combining and diffusing the latest and best information relative to this esculent—to disabuse the public mind from growing prejudice—and to disseminate widely the most successful modes of culture—that the National Potato Society is formed.

There is every reason to believe that Chili, and especially the neighbourhood of Quito, is the native country of the Potato. It is there now found in a wild state; its slightly bitter tubers have been thence imported of late years; and cultivation has gradually raised from those tubers plants now producing crops of excellent Potatoes. We learn, also, from Peter Cieca and Molina, that when the Spanish navigators first visited Chili and Peru, their inhabitants cultivated and ate a tuberous-rooted plant which they called papas. Molina says there are two kinds: the wild, having small bitter tubers; and the other, improved by culture so as to have tubers grateful to the palate.†

The Spaniards imported the Potato into Spain where it was called Battata, from the resemblance the tubers bore to those of the Sweet Potato (*Ipomœa Battata*), and from thence it was communicated to Italy. This was at the close of the fifteenth or early in the sixteenth century; yet at the latter period the Potato was so little known even to botanists, that Lobel, in his "Plantarum seu Stirpium Historia," published at Antwerp in 1576, has no mention of it, though he describes and figures the Sweet Potato. Gerarde, in England, however, and Caspar Bauhine, at Basil, both in the year 1596, gave notices of their acquaintance with it yet still evidently as a rarity.

* De Kapoesang was the first successful cultivator of the Potato in Austria.

† P. Cieca's "Chronicle," published in 1553. Molina's "Hist. of Chili."

The Spaniards first visited South America in the year 1492, and there is no rational doubt of this being the earliest period in which the Potato became known to Europeans. Cnissius and some others have surmised that the Arachidna described by Theophrastus was the same plant, although the suggestion does not appear with a single reason to sustain it; but it seems to me that the Arachidna is identical with the Arachidna of Pliny, Hist. lib. xxi. cap. 20, and this appears to have been synonymous with our Truffle. Pliny says it was a root having no leaf or stem or any other part above ground. Cortucius had a similarly groundless opinion as to the identity of the Potato with the Picnocomus of Dioscorides. This certainly was not the Potato, for it is described as growing wild in southern Europe in stony places, as having acrid leaves, and seeds narcotic, producing heavy disturbed sleep.

Caspar Bauhine, in his "Phytopinax seu Eneumeratio Plantarum," published at Basil in 1596, first bestowed upon it the botanical names it still retains—*Solanum tuberosum*; and his description is also the first occurring that is full as well as accurate. Some of the particulars intimate a knowledge of the consequences of certain modes of treatment that we have been lately, and, it would seem, mistakenly, considering of recent discovery. The root, he says, is round, but not completely so, of a tawny or dark reddish colour, and is usually dug out of the earth in the winter, being replanted in the spring. "Nevertheless, if left in the soil it will again vegetate in the spring. Very often the root becomes rotten after it has put forth the stem." It was known as the Spanish or Indian pappar, and endured without difficulty the climate of Europe, for he had seen it in the open gardens of some physicians in the Netherlands.

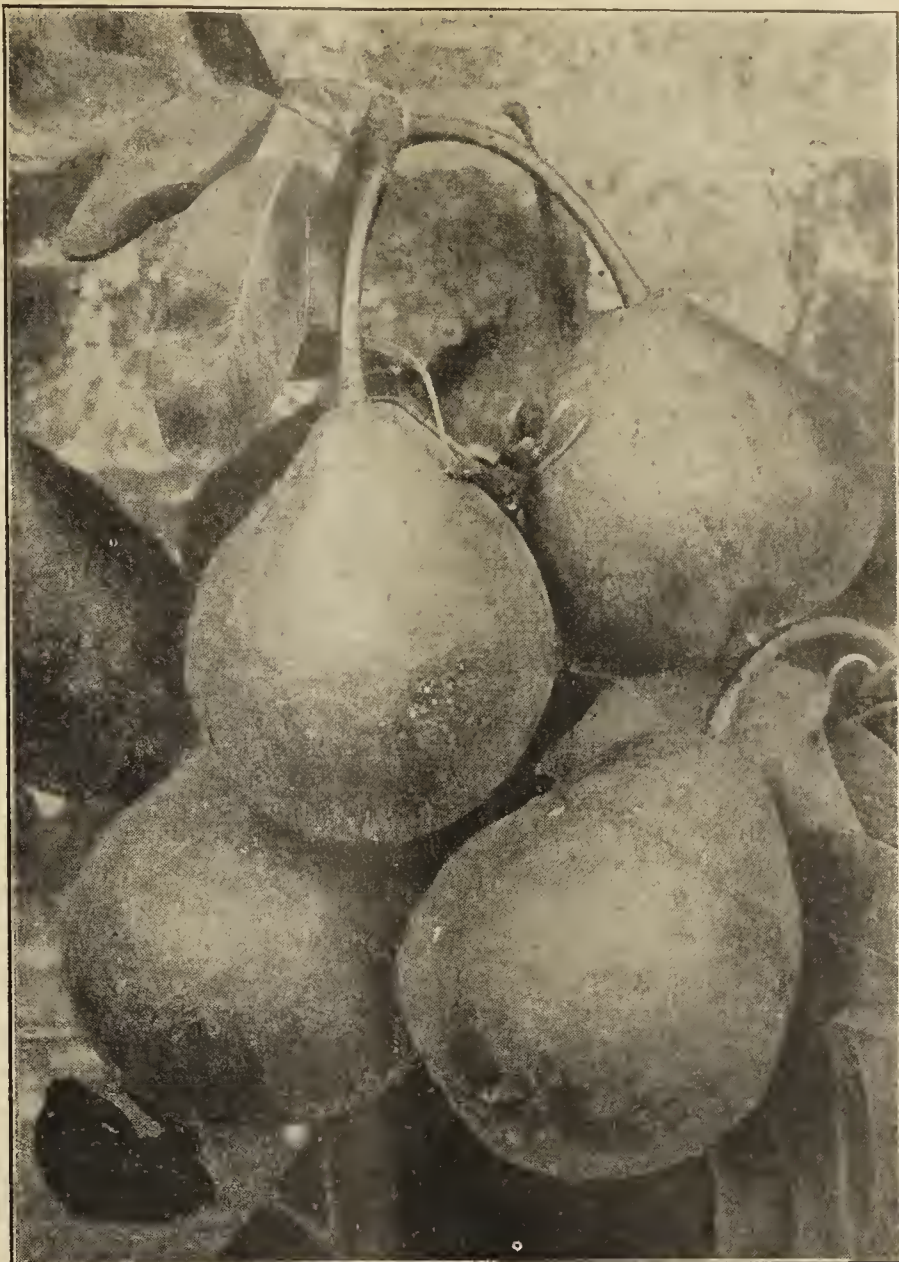
In his "Prodromus," published in 1671, Bauhine gives a drawing of the Potato, showing the tubers as both round and oblong, and enters still more fully into its description. He says it was first brought from Virginia to England, and from thence was exported to France, and from the latter country was distributed to other parts of Europe. In Virginia it is called openawek, as is stated by Peter Cieca and in Gomara's "History of the Indies." About Quito it was called papas, and thence it was sometimes called the Indian or Spanish papas; and in Germany grublingbaum, that is, the tuber-bearing shrub. Bauhine says that he first delineated it in 1590, from a specimen in the garden of Dr. Scholtz, who probably received it from Clusius.

Peter de Sivry, Lord of Walhain, had the Potato, in 1587, from a friend of the Pope's legate in Flanders. It was brought from Italy under the name of tortufole, a name applied to all underground tubers by the Italians. The Lord of Walhain gave two of the tubers to Clusius in 1588. ("Clusius History Plant.")

Our countryman, Gerard, in 1596, specifies the Potato, under the title of *Papus hispanicus*, in the catalogue of plants cultivated by him in his garden at Holborn.* In his "Herball," published the year following, he describes the Potato accurately.†

After particularising the Sweet Potato, which he calls "Sisarum Peruvianum, sine Batata Hispanarum, Potatus or Potatoes," he proceeds to the consideration of the common Potato, under the title of "Potatoes of Virginia. Battata Virginiana sive Virginianorum et Pappus." The woodcut and the description demonstrate that the plant he had before him was our common Potato; and he proceeds to observe that: "It groweth naturally in America, where it was discovered, as reporteth C. Clusius; since which time I have received roots hereof from Virginia, otherwise called Norembega, which grow and prosper in my garden as in their own native country."‡

After stating the time of its blooming, &c., Gerard adds, "The Indians call it papus (meaning the roots), by which name the common Potatoes (sweet) are known to them. We have the name proper unto it mentioned in the title, because it hath not only the shape and proportion of Potatoes, but also the



Pear, Fondante de Thirriot.

pleasant taste and virtues of the same; so we may call it, in English, Potatoes of America or Virginia. Being likewise a food, as also a meat for pleasure, either roasted in the embers, or boiled, and eaten with oil, vinegar, and pepper; or dressed any other way by the hand of some cunning in cookery."

In 1633, "Thomas Johnson, citizen and apothecary," published a new edition of Gerard's "Herbal," and it is very apparent that the Potato had then improved under cultivation, for the tubers there represented by him are large, and resembling the Julys now cultivated in form; whereas those portrayed by Gerard are small and globular, like those produced by the plant in its wild state.

(To be continued.)

* Catalogus arborum fruticum, &c. in horto J. Gerardi, civis et chirurgi Londinensis nascentium. London. 1596.

† Herball, or General Hist. of Plants. London. 1597.

‡ At the end of the preface is a portrait of Gerard; and it deserves notice, that he holds in his hand a sprig of the Potato—leaves, flowers, and fruit—as if he considered it one of the most remarkable novelties of his time.

Agricultural Returns of Great Britain, 1903: Potatoes.

STATEMENT SHOWING THE ESTIMATED TOTAL PRODUCE AND YIELD PER ACRE IN GREAT BRITAIN IN THE YEAR 1903, WITH COMPARISONS FOR 1902, AND THE AVERAGE YIELD PER ACRE OF THE TEN YEARS 1893-1902.

CROPS.		ESTIMATED TOTAL PRODUCE.		ACREAGE.		AVERAGE ESTIMATED YIELD PER ACRE.		AVERAGE OF THE TEN YEARS 1893-1902.
		1903.	1902.	1903.	1902.	1903.	1902.	
		Tons.	Tons.	Acres.	Acres.	Tons.	Tons.	Tons.
POTATOES	ENGLAND	2,041,023	2,225,569	402,725	412,739	5.07	5.39	5.96
	Wales	131,846	155,508	30,197	31,446	4.37	4.95	5.65
	Scotland	740,844	813,111	131,364	129,695	5.64	6.27	5.75
	Great Britain... ..	2,913,713	3,194,188	564,286	573,880	5.16	5.57	5.89



Seasonable Plant Notes.

CYCLAMENS.—The advantage of growing a batch of these useful and showy plants as annuals can now be discerned, as they can be had in various sizes for all forms of decoration. Plants carrying three dozen blooms in 6in pots are fine objects for the drawing-room, while those with a third of the flowers in 3in pots are always useful. The November sown plants are now in full beauty, and do not require stimulants longer; those of a later batch now putting up their flowers should be encouraged to grow strongly with occasional doses of weak liquid manure or some approved fertiliser. Cyclamens are impatient of too much moisture at the roots at this season, therefore water them carefully. A high temperature is not desirable, or the blooms will last but a short time, and those pushing up will be weak in the stem and the flowers pale in colour. A buoyant atmosphere with a temperature not above 50deg is all that is required. One great gain about these annual Cyclamens is they do not occupy space and time in attending to them after flowering is past, as they are thrown away at once, except in the case of any special variety or an extra sized plant or two is required. The November sown seedlings should be potted off into thumbs or pricked into pans as soon as they are large enough to handle, using a compost of loam, leaf mould, and peat in equal proportions, with a plentiful addition of sharp silver sand. A temperature not less than 6deg is still desirable for them after potting. A pinch of seed sown now would make desirable plants to follow the earliest batch. A moist bottom heat in a temperature of not less than 65deg will quickly cause the seeds to germinate. In a pan with sandy soil is the best medium of raising the plants.

PRIMULAS.—The various forms of Chinese Primulas are extremely useful for decoration, both as growing plants and in a cut state. The colours are so brilliant and chaste that almost any tint is now obtainable. For cutting, the double-flowered varieties are perhaps the more useful. All sections are easily raised from seed, and give good results the same year. Where Primulas are grown entirely from seed a regular sowing at intervals maintains a regular supply of flower. When treated as annuals there is no trouble incurred in preserving a stock for next season's plants. The only exception to seedling-raised plants is in the case of varieties like the old Double White and its improved forms, and these are exceptionally valuable for cutting that I advocate a stock of these being kept. The first pinch of seed of any approved form of double or single should be sown in February in sandy soil in a gentle heat. Where gardeners err in obtaining a good supply of plants from seed is that they keep the soil too dry, thus preventing the regular germination of the seed, the shell of which is particularly hard, and requires moisture to soften it sufficiently to ensure germination. A sheet of glass covered with moss placed over the pan does much to increase the moist conditions of the soil and seed, encouraging as it does so efficiently the condensation of moisture. In the case of flowering plants of any section, do not give too much water at the roots at this season; they are impatient of stagnation, especially if the temperature in which they are growing occasionally drops down below 40deg, 10deg higher is more congenial to their welfare.—E. M., Swanmore, Hants.

Hardy Fruit Garden.

LIFTING AND ROOT-PRUNING.—This work should be at once got out of hand, for though possible of accomplishment with success until March, the longer the operation is delayed the greater are the possibilities of failure. Moreover, the trees that are dealt with late in the season fare badly during hot summers. Many large trees that have become rampant, and need root-pruning to check growth and bring them into a fruit-bearing state, should have the operation extended over two years, doing but half the work the first season and completing it the next; this will be found much safer than wholly lifting large trees. Young bushes or standards that appear to be making growth at the expense of fruit may frequently be greatly benefited by replanting, simply shortening any roots having a downward tendency, and removing damaged portions of others.

PRUNING.—Like the above operation, this is best done immediately the leaves are down, except in the case of newly-planted trees; the wounds then heal before hard weather sets in. Where not already completed the work ought as quickly as possible to be finished, afterwards raking up the prunings and

burning them. The ashes from these provide excellent material for mixing with the soil when planting young trees, or for spreading over the surface of the roots of older ones. For the latter purpose it is useless to apply them in small quantities.

THE LEADERS OR EXTENDING SHOOTS of young fruit trees should not be cut hard back year after year, as is too frequently done. It is pitiable to see strong growths stubbed back to three or four buds annually. The main branches of Apples and Pears should always be from twelve to eighteen inches asunder; the side shoots from these may be cut back to three or four buds; the growths for the extension of the trees should merely be shortened about one-third of their length. Old trees may sometimes be brought into a vigorous condition again by gradually eliminating decrepit branches, and by generous root treatment inducing young shoots to take their places. The pruning of recently planted trees may well be delayed for some time in February.

RENEWING OLD ORCHARDS.—The holder of extensive plantations should make an effort to renew some part of his trees each year, when these show signs of having passed their best, and the stage when remedial measures can be profitably applied. The old trees should be cleared off the land, having their roots grubbed out at the same time. Trench the soil two or three spits deep, dressing with good yard manure, ten to twenty loads per acre. If the smaller quantity is used this may be supplemented in spring and summer by one or two applications of superphosphate and sulphate of potash mixed—from 4cwt to 6cwt per acre of the former and from 1cwt to 2cwt of the latter. Provided the land drainage is efficient, young trees so treated after proper planting will quickly assume useful proportions and return a profit.

PREPARATIONS FOR GRAFTING.—Where too many trees of one variety have been planted, or where unsuitable sorts are growing on healthy stocks, this is the most expeditious method of replacing with approved varieties. In some instances it has also been the means of restoring health and vigour to badly conditioned trees. Notes should have been made during the past season as to those found necessary to operate upon, and a sufficient number of scions should be prepared in readiness, where the matter has not already received attention. Fairly strong, clean shoots, as well ripened as can be obtained, ought to be laid in, in a shaded position where little or no sun can reach them. Some authorities recommend burying them almost to the tips, but they will keep quite fresh and plump if heeled in three or four inches of soil. It is well to tie them in small bundles with correct labels attached.

RENOVATING OLD TREES.—Many old trees that have fallen into a weakly state are suffering from a lack of soil fertility. By pouring liquid manure over the roots at this season—in the absence of frost—much may be done to restore the trees again to health. While the soil is saturated and the roots are more dormant than at any other time, the liquor can be used with impunity at great strength, and its effects will last throughout the year. Mulching as far as the roots extend with rich manure is a practice worthy of commendation. By taking out a trench around the extremities of the roots and placing the manure therein, the food is brought into closer contact, and the results to be obtained are naturally quicker. Whatever the means adopted the present is the time to act. This work of assisting old fruit bearers calls generally for a greater amount of attention. In many districts fruit trees receive little or no manure from the time they are planted until they are past redemption.—J. WRIGHT, Newent, Glos.

Fruit Forcing.

VINES: EARLIEST HOUSES.—When the air is sharp and cold great care must be given to the ventilation, for draughts of cold air cause injury. Some ventilation, however, is necessary to prevent the leaves becoming thin and poor in texture, as in that condition they are liable to be scorched, and to fall a prey to red spider. Disbud when the pest shows, for fruit can be distinguished; tie down the shoots before they touch the glass, taking care not to bring them down too sharply, or tie too tightly. Stop two or more joints beyond the bunch, not, however, acting on any rule of thumb principle, but be guided by the space at command. Do not burden the Vines with superfluous bunches, one on a lateral is sufficient, for overcropping and overcrowding are great evils. As the bunches come into flower maintain a day temperature of 70deg to 75deg, falling 5deg, however, during the night, and keep the atmosphere rather drier. Supply water or liquid manure as required, but not making the soil sodden, as this often hinders root formation, gives a plentiful protrusion of aerial roots, and a sappy growth with shanking. Outside borders must have attention, which will be very slight where they have been covered with leaves and litter or dry fern; but where fermenting materials are used they must be replenished, keeping a good heap of leaves and stable litter in the reserve ground to admit of a supply being obtained readily.

HOUSES TO RIPEN GRAPES IN JUNE.—Start the Vines at once. Supply the outside border thoroughly with water a few degrees warmer than the house. Liquid manure at this stage will come into use later on, as it must undergo certain changes before it can be of any use to the Vines. To economise fuel fermenting materials may be used inside the house, throwing it into a heap on the floor and turning frequently to liberate the ammonia and maintain a genial warmth and moisture constantly, adding fresh material as necessary. Where fermenting materials are not at command the floor and border may be sprinkled with diluted liquid manure daily, using a three gallon watering-canful to about 30½ square yards. The temperature should be 50deg to 55deg by artificial means, and 65deg from sun heat. If the roots are outside they will need protecting with a good thickness of dry leaves, litter, or fern. This will secure to them a much higher temperature than if there were no such portion, and it is often better than fermenting materials that are not attended to properly in maintaining the heat. Where the border has been exposed to cold rains and snow the temperature will be little, if any, warmer than the surrounding soil, and a good bed of fermenting material can be used with advantage, placing it on the border about 18in thick. This will, to some extent, warm the soil and encourage the growth of the roots, but it must be removed by the time the sun gains power to warm the soil, leaving only enough for a mulch.

HOUSES FROM WHICH THE GRAPES HAVE BEEN CUT.—Prune the Vines without delay; it not only avoids danger of bleeding, but ensures complete rest. Cut to a plump bud as near the base as possible. Some Vines, however, do not prove satisfactory when closely pruned. The operator must act accordingly, and choose the second to third or fourth bud, or the best eye infirm, well ripened wood wherever situated. This will cause the spurs to become long, but that can be remedied by training a shoot from the base to displace it after bearing, and the Vine will be all the better for the extra foliage, showing it on the finish of the crop. Remove all loose bark, avoid peeling and scraping, washing the rods with a solution of paraffin emulsion, 4oz to a gallon of water, and after thoroughly cleansing the house dress with an insecticide. Clear away all loose soil, supply fresh lumpy loam in its place, and sprinkle about half a pound of some approved fertiliser per square yard where the Vines are in need of substantial support, the material being pointed in. Keep the house as cool as possible to secure complete rest.

LATE GRAPES.—It is absolutely necessary that Grapes hanging late be kept cool and uniform in temperature. Maintain a mean temperature of 50deg for Muscats, 45deg for other varieties that have finished late, with a dry atmosphere where such are hanging. Examine every bunch at least twice a week, and remove any decayed berries. Ventilate the house on fine dry mornings, and keep closed when the weather is damp; but a gentle warmth in the pipes is necessary to prevent the deposition of moisture on the berries. It is hardly possible to keep Grapes in good condition beneath leaky roofs, or even in the best structures can the Grapes have the coolness and uniform temperature essential to their sound keeping on Vines after the sun gains power; besides, their hanging is not good for the Vines, which to do well require to be started in good time to ensure a satisfactory finish of their crops. The Grapes may now be removed to a dry room, where they will keep as well as on the Vines. The Vines must then be pruned, thoroughly cleansing the house. Dress the Vines, and wash every part with some approved insecticide, applying with a brush. Air should be admitted freely in favourable weather, seeking to give the Vines as long and complete rest as possible. Where the borders are not satisfactory lift the Vines, and relay the roots in fresh compost, and where the Vines have inside and outside borders the renovation may be accomplished without loss of crop by renewing the former one year and the latter the next.

STRAWBERRIES IN POTS.—Proceed steadily with plants that are not required to give fruit at a particularly early stated time, especially in severe weather; 50deg to 55deg is ample at night for those started in December, and 60deg to 65deg by day, erring, if at all, on the safe side—the low—therefore 5deg less in cold weather, and the absence of sun is advisable. Ventilate whenever there is a chance. The trusses rise boldest and are strongest when the plants have the foliage well elaborated. Close atmosphere induces soft tissues, weakly organs of fructification, imperfect sets, and deformed, ill-shaped fruit.

INTRODUCE MORE PLANTS TO SHELVES in Peach houses or vineries started about this time. Rectify the drainage of the pots, remove moss or other matter from the surface of the soil, and wash the pots clean. Surface dress with an approved fertiliser mixed with a little fine soil. If the plants do not push freely use a little superphosphate, three parts, and crushed saltpetre, one part, a thimbleful to a plant. Royal Sovereign, President, and Sir Joseph Paxton are excellent varieties for introducing now, but to maintain the succes-

sion of fruit unbroken plants of La Grosse Sucrée and Vicomtesse Hericart de Thury must be introduced at the same time. G. A., St. Albans, Herts.

The Flower Garden.

LAWNS.—During suitable weather lawns may be frequently rolled, first sweeping them over to destroy wormcasts and remove any stray leaves. Uneven portions ought to be lifted, raising or lowering the ground as necessary, then returning the same or better turf. In forming new lawns see that the ground is perfectly level before laying the turf. Moss-infested lawns should have the moss raked off as far as possible, then give a dressing of wood ashes, either alone or mixed with fine soil. Where new lawns are intended to be sown with seed in spring, the ground should be broken up, made firm, and approximately level. The weather in the meantime will pulverise and ameliorate the surface.

LILY OF THE VALLEY.—When a bed has been established for many years the crowns become crowded and weakened, producing few flowers, but abundance of foliage. The soil becomes impoverished also of food and moisture, owing to the mass of roots constantly feeding upon it. To improve such beds the best treatment is to lift the roots entirely, placing them on one side in fair-sized patches. If another piece of rich, well-dug ground is not available, trench the same site again deeply, and liberally manure it. Then shake out the roots and select the strongest crowns for replanting. Some flowering crowns will, no doubt, be found. These may be reserved for potting. In planting, arrange single crowns 3in apart, spreading out the roots, and cover with prepared compost the tips being just below the surface. A light mulching of manure may be given when finished.

BORDERS FOR WALL PLANTS.—Borders or stations for planting climbing and twining plants should be prepared now, so as to be in readiness when the plants are to hand for inserting. Among the most popular climbers are Ampelopsis, Clematis, Cotoneaster, Cydonias, Ivies, Honeysuckles, Jasminums, Roses, and Wistarias. For all these the same general method of preparing the soil may be followed, namely, thoroughly trenching and manuring borders, taking out the soil for stations not less than 2ft wide and two spits deep, breaking up the subsoil, returning the soil mixed with manure and turfy loam.

TRANSPLANTING SHRUBS.—The present is an excellent time to lift and transplant any deciduous or evergreen shrubs which require this attention. It is possible they may be so thickly placed that they are injuring one another, hence the advisability of removing some. Take out a deep trench all round, and at such a distance that but few of the principal roots will be sacrificed. Shrubs that can be lifted with a good ball of fibrous roots will take but little harm. Many shrubs are better for lifting occasionally, as it checks the tendency to gross rooting. In replanting, see that the ball of soil and roots is placed well down. After thinning out the crowded shrubs, the remaining specimens will, in many cases, require re-arranging.

HEDGES.—Well-kept hedges, as a rule, have the pruning and clipping carried out in autumn, but any which have been neglected ought to be cut now into shape. Overgrown hedges may be pruned well back and allowed to break again. New hedges may be planted now. Deciduous hedges may be formed of Thorn, Elder, Hornbeam, Beech, and Sweet Briar. Evergreen hedges are formed by planting Holly, Laurel, Box, Evergreen Oak and Evergreen Privet. Conifers such as Cupressus Lawsoniana and Thuja Lobbi make excellent hedges. See that the ground is thoroughly clean and well cultivated to a good depth. A vigorous growth from the first is essential.—E. D. S., Gravesend.

Trade Catalogues Received.

- J. Backhouse and Son, The Nurseries, York.—*Seeds*.
 Baker's, 67, 69, and 71, Lichfield Street, Wolverhampton.—*Seeds and Plants*.
 Barr and Sons, 11, 12, and 13, King Street, Covent Garden, London.—*Seed Guide*.
 W. Bull and Sons, Chelsea, London.—*Seeds*.
 W. Atlee Burpee and Co., Philadelphia.—*Farm Annual, 1904*.
 Isaac Godber, New Town Nurseries, Bedford.—*Market Chrysanthemums*.
 M. Herb, 24-36, Via Trivio, Naples, Italy.—*Seeds*.
 Kent and Brydon, Darlington.—*Seeds*.
 John K. King and Sons, Coggleshall, Essex.—*Seeds*.
 Vilmorin-Andrieux and Co., 4, Quai de la Mégisserie, Paris.—*General Spring Catalogue*.
 Webb and Sons, Wordsley, Stourbridge.—*Seeds*.
 H. Weeks, Thrumpton, Derby.—*New and Choice Chrysanthemums*.
 Wills and Segar, Royal Exotic Nursery, South Kensington, London.—*Seeds*.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

DEFINITION OF SINGLE-HANDED GARDENER (E. L.).

—It does not mean one-armed gardeners, but gardeners who are classed as professionals, and who manage gardens alone. Occasionally they may have assistance for a brief period, but that would be all.

METROPOLITAN PUBLIC GARDENS ASSOCIATION (A. B.).—The secretary's address is 83, Lancaster Gate, W. The objects of the association are to acquire parks and open spaces for London; the planting of street trees; the placing of seats in parks and other places; and generally to bring joy into the lives of the thickly populated districts by providing them with places for rest or recreation.

BOOK ILLUSTRATING AND DESIGNING FLOWER BEDS ON GRASS AND GRAVEL (Working Gardener).—We are not acquainted with any book that gives illustrations of practical lessons on this subject, and, indeed, all that is required is a well grounded knowledge of practical geometry, and this, applied by the use of scale and compasses, or measurements and lines of length and breadth to the figures proposed to be formed on grass or gravel. All figures are simple modifications of geometrical problems worked out, especially in the case of octagon and other figures. Geometry is usually included in works on mensuration, in fact, as an essential prelude, and consists of definitions, problems, and theorems in geometry, of which Nesbit's is the best. It is published by Messrs. Longman and Co., Paternoster Row, London, price 6s. Unless you have a good arithmetical education, it contains matter that will, for the most part, be of no use, as only twenty-three pages are devoted to geometrical theorems.

FOLIAGE OF LILIUM CANDIDUM DESTROYED FOR SEVERAL YEARS (Alpha).—According to your description, the foliage appears annually infested with the Lily disease, which was first discovered as due to a parasitic fungus by the Rev. M. J. Berkeley in 1881, which he called *Ovularia elliptica* ("Gardeners' Chronicle," September 10, 1881), and afterwards acquired, it certainly not being an *Ovularia*, the name of *Botrytis elliptica*. It, however, is the same mould as that found on Tulip stems and other parts of cultivated Tulips, and named *Botrytis parasitica*, this being the conidial condition of the fungus and the resting stage attributed to *Sclerotinia*, which, however, has not been observed in the ascigerous stage. The disease attacks most species of *Lilium*, but more commonly the White Lily (*Lilium candidum*). Rust-coloured patches come upon the leaves and buds, though most frequently on the foliage, as if they had been burnt, and if the buds are attacked they may be destroyed, though commonly they are not, yet the flowers often become imperfect and distorted, and the whole plant has a blighted appearance. The threads of the mould arise from the creeping mycelium, and are somewhat branched in the upper portion, the ends of the branches having pear-shaped swellings, each bearing several conidia, each conidium egg-shaped and colourless, and attached to the swollen end of the conidiosphere by a minute peg-like stalk. The conidial condition, however, is not produced except under certain favourable conditions, such as moist weather, or in a confined position; while minute sclerotia are formed on the diseased leaves and stems, this being the resting stage of the mycelium. No remedies have been suggested, or even tried, to any material extent, that of destroying infected plants and bulbs being worse than the disease; for the latter does not more than cripple the plant, and I have found that dusting air-slaked lime over the plant at frequent intervals has a good effect, commencing with the pushing of new growth and continuing at times so as to coat all the leafage with the air-slaked lime. Probably the good effect is resultant of the action on the mycelium in the soil, or about the crown of the plant, it probably commencing or capable of leading a saprophytic as well as a parasitic mode of life; but upon this point there is no definite data. All infected stems should be destroyed by fire as soon as flowering is over, and the plant freely dusted over with air-slaked lime, and for some distance around each clump.—G. A.

ARTIFICIAL MANURE FOR VIOLETS IN PITS AND FRAMES (Alpha).—The best is Peruvian guano of any we have tried, though the various advertised fertilisers are excellent when applied according to the instructions. The guano must not be used over the foliage, nor even sprinkled on the soil, unless this be lightly stirred, so as to cover the guano, as contact with leafage or flower buds is disastrous, and the ammonia arising from the guano will scorch them when the frame or pit is closed. Dissolve 1oz in a gallon of water and strain before use, applying so as not to wet the foliage. Another excellent fertiliser, but dear, is a mixture of two parts phosphate of potash and one part nitrate of ammonium, using 1oz of the mixture per gallon of water, and keeping from the foliage.

MEANS OF USING BONES IN THE GARDEN (A. C. B.).

—The best means of using bones on a small scale is to take a large watertight hogshead, and cover the bottom with about 6in deep of dry soil. On this put a layer of bones of the same depth, and cover them entirely with wood ashes. On these another layer of bones, then wood ashes, and so on until the hogshead is full. Leave it exposed to the rains all summer and winter till spring. Then, on removing the contents of the hogshead the bones will crumble to powder under a slight pressure, and form one of the most valuable manures ready for immediate use. Or, convert the bones into superphosphate as follows: Place the bones on an earthen floor surrounded by a rim of ashes; pour on as much water as the bones will suck up, and then pour on sulphuric acid; it will boil somewhat violently for a while. When this has subsided it will get tolerably solid, and the ashes and all may be shovelled up together, and when sufficiently dry will be fit for use. The proportion of bones and of sulphuric acid is five to two, say, of bones 5cwt or lb, and of sulphuric acid 2cwt or lb, according to quantity of bones. For use in Vine borders the bones may be broken with a heavy hammer on a thick iron plate, crushing them as finely as may be. They are best treated, however, as before advised, and may be used in superphosphate state at the rate of 3oz or 4oz per square yard.

PLANTING WATER LILIES IN A RUNNING STREAM

(E. J. W.).—It is practically of no use planting Water Lilies in a running stream, as, though found in rivers, it is only in the relatively still waters that they thrive. If the current is not strong, and there is a sufficient depth of water, say 2ft to 3ft, with a fair amount of mud at the bottom, you may plant with a certain measure of success, according to the circumstances of current, the less the better. The best mode of planting is to run off the water and form hillocks of turfy loam, decomposed manure, and rough sand, about a foot deep, and twice as broad, and in the centre plant the Lilies, placing some stones at the sides and on top so as to prevent the soil washing away. Where it is impracticable to make a hillock, place the tubers in baskets of rich soil and submerge these in the places where the plants are intended to grow. May and June are the best months for planting. The Yellow Water Lily (*Nuphar luteum*) and the Stranger (*N. advena*), also yellow, with red anthers, thrive, either in still or in running water, it being important to secure the roots well in the positions or baskets, otherwise the newly planted rootstocks frequently float to the surface of the water, similar remarks applying to *Nymphaeas*. Of hardy *Nymphaeas* the British Water Lily (*N. alba*) thrives in many rivers, but chiefly where the water is relatively still. Other varieties worth trial are *N. Laydekeri rosea*, a vigorous grower, and one of the best, flowers at first delicate pink, changing to rose pink. *N. Marliacea chromatella*, beautiful clear yellow, with bright orange stamens, very fragrant, and produced continuously through the summer and autumn months. *N. Marliacea ignea*, crimson, one of the most gorgeously coloured. *N. odorata gigantea*, large pure white flowers. *N. odorata sulphurea*, large yellow fragrant flowers. *N. tuberosa*, a vigorous growing species, with large leaves and large white flowers. The last-named and the *Nuphar* are most likely to succeed in running water.

RELATIVE VALUES OF COW DUNG, SHEEP DROPPINGS, AND SWINE MANURE (F. H.).—The following table of contents for 1,000lb is demonstrative:

CONSTITUENTS.	COW.	SHEEP.	SWINE.
Water ..	860	640	760
Solid matter ..	140	360	240
Nitrogen ..	3.6	7	6
Phosphoric acid	3	5	5
Potash and soda	2.2	3	6.5

Sheep manure is the driest, and, weight for weight, the richest of all animal manures. Next in order come the swine and cow. The manures, however, depend largely on the litter used, so as to retain the potash, which, in the case of the cow, is six times more abundant in the urine than in the dung, and shows the importance of having a good litter that will absorb as much of the urine as possible.

MANUFACTURING BLOOD MANURE (W. M.).—We are not aware of blood being treated with sulphuric acid, and to do so we do not think would be advisable. M. Paul Marguerite-Delachauloumy, however, has, by means of acid sulphate of iron, transformed blood into a solid and inodorous manure; but we have not been able to ascertain the exact formula. Probably the highest manurial value is had from blood by drying it and then grinding to powder, the article being known as dried blood. Practically the dried blood of commerce is a mixture with other animal remains reduced to powder. When of good quality it contains about twelve to fifteen per cent. of moisture, ten to eleven per cent. of nitrogen, one to one and a half per cent. of phosphoric acid, and about three-quarters per cent. each of potash and lime. Perhaps the best treatment for home supplies of blood manure is to compost the blood with wood or peat ashes and charcoal powder, using about one bushel of ashes and charcoal powder to 6½ gal of blood. The blood and wood ashes are somewhat difficult to mix, but if the blood is stirred so as to prevent coagulation, there is little difficulty, and enough wood ashes being used to form a stiffish mortar-like consistence, a fertiliser is formed of great value for Vines and other fruits, it crumbling readily when sufficiently dried, applying 4oz of the manure per square yard three times during the season, (1) at starting the Vines, (2) at thinning time, and (3) when the stoning is about completed, pointing very lightly into the border. Another plan is to thoroughly mix the blood with about five per cent. of its weight of dry, freshly slaked lime, in a trough or shallow box, and cover the mixture with a thin layer of lime. This mixture, when dry, can be kept for a long time without appreciable change, and may be applied to the land as desired.

NAMES OF PLANTS.—*Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number.* (A.).—*Acacia dealbata* or *Mimosa*. (J. F.).—1, *Abies balsamea*; 2, *A. Brunoniana*; 3, *A. concolor*. (F. T.).—1, *Maranta conspicua*; 2, *Cypripedium villosum*; 3, *C. Lathamianum*; 4, *Dendrobium aureum*. (J. P.).—1, *Oncidium carthaginense*; 2, *Habenaria carnea*; 3, *Selaginella delicatissima*.

The Weather.

December Weather at Belvoir Castle, 1903.

The prevailing direction of the wind was south, total thirteen days. The total rainfall was 1.04in, this fell on nineteen days, and is 1.04in below the average for the month; the greatest daily fall was 0.32in on the 8th. Barometer (corrected and reduced): highest reading, 30.251in on the 21st at 9 a.m.; lowest reading, 29.082in on the 10th at 9 p.m. Thermometers: highest in the shade, 49deg on the 9th and 22nd; lowest, 21deg on the 30th; mean of daily maxima, 40.77deg; mean of daily minima, 32.80deg; mean temperature of the month, 36.78deg; lowest on the grass, 17deg on the 2nd and 30th; highest in the sun, 75deg on the 14th; mean temperature of the earth at 3ft, 42.25deg. Total sunshine, 41 hours 55 minutes, which is 5 hours 8 minutes below the average for the month; there were sixteen sunless days. The mean air temperatures are much below the averages for the month.—W. H. DIVERS.

Observation of Rainfall for 1903, at The Gardens, Camp Hill, Woolton, Lancashire.

I think you do not get a report of the rainfall in this neighbourhood for our good old Journal, of which I have been a reader now for nearly thirty years. It may be of some interest to some of your numerous readers to know the amount of rain which has fallen in this district during the past year and the number of days without rain for each month. The nine wettest days consecutively during the year, the rain gauge registering for October 27, 1.42; July 21, 1.10; September 10, 0.97; November 2, 0.68; March 17, 0.68; November 27, 0.67; September 3, 0.66; May 5, 0.65; October 7, 0.60. The seven coldest nights during the year: January 14, 12deg of frost; January 13, 10deg; December 29, 9deg; December 30, 9deg; January 11, 9deg; January 16, 8deg; January 10, 8deg.

RAINFALL FOR 1903.	INCHES.	DAYS WITHOUT RAIN.
January ..	2.14	14
February..	2.09	11
March ..	3.47	9
April ..	1.70	17
May ..	3.48	11
June ..	1.76	22
July ..	3.30	16
August ..	4.16	5
September ..	6.13	10
October ..	7.09	2
November ..	3.48	9
December ..	1.45	13
	39.25	129

226 days with rain.

—JOSEPH STONEY.

Rainfall in 1903 at Rood Ashton, Wilts.

Rain gauge: Diameter of funnel, 8in.; height of top, above ground 1ft. 6in., above sea level 250ft.

Month.	Total Depth.	Greatest Fall in 24 Hours.		Number of Days on which 0.01 or more fell.
	Inches.	Depth.	Date.	
January ..	... 5.70 ...	.. 0.91 ..	.. 4th ..	... 13
February..	... 2.04 ...	.. 0.55 ..	.. 14th ..	... 11
March ....	... 4.06 ...	.. 0.71 ..	.. 2nd ..	... 20
April .....	... 2.16 ...	.. 0.63 ..	.. 25th ..	... 11
May .....	... 5.35 ...	.. 0.30 ..	.. 29th ..	... 17
June .....	... 5.36 ...	.. 1.15 ..	.. 19th ..	... 10
July .....	... 3.87 ...	.. 0.85 ..	.. 23th ..	... 12
August....	... 4.77 ...	.. 1.07 ..	.. 15th ..	... 17
September.	... 2.27 ...	.. 0.28 ..	.. 10th ..	... 17
October ..	... 7.19 ...	.. 0.81 ..	.. 12th ..	... 28
November.	... 2.32 ...	.. 0.98 ..	.. 27th ..	... 13
December..	... 2.98 ...	.. 1.08 ..	.. 12th ..	... 15
Total.....	... 45.80 ..	.. 10.00 ...		189

—W. STRUGNELL.

Rainfall at Edinburgh.

At the Royal Botanic Garden, Edinburgh, situated one mile from the Forth and 76ft above sea level, 32.577in rain fell during 1903. Rain was present in the gauge 218 mornings out of the possible 365. Least rain fell during December (1.015) and April (1.075), whilst January, February, and March were the wettest months, with 4.065, 4.465, and 4.470 inches respectively. The late frosts of spring, the lack of sunshine during the summer months, were the characteristics of 1903 in Edinburgh, as, indeed, elsewhere. Only one hour of bright sunshine occurred from December 7, 1903, to January 8, 1904. The atmosphere then cleared, 2½ hours sunshine occurring on the latter date.—D. S. FISH.

Notes from Newton Mearns, N.B.

The new year holidays have passed, and we can only now reflect on the joyous time we have had. The weather during the holidays was simply delightful, hard frost ruling, and a clear atmosphere. Skating and curling were indulged in to no small pitch, and outdoor labour had to be entirely suspended. The frost has now disappeared after a heavy day's rain on Thursday, but to-day the atmosphere is genial—sun shining brightly. Should the present climatic conditions remain we shall be able to do some delayed planting. Roses, shrubs, and fruit trees which had arrived from the nursery as far back as the beginning of November are still requiring to be planted. We would like to get these planted now, or as soon as possible, as the season is now getting on. We used to be able to have a little planting done in November or December, but last year's atmospheric conditions would not permit. Although frost seems to be setting in again to-night, yet the barometer is low, and we may have some broken weather for some days to come.—N. R.

Publications Received.

Missouri Botanical Garden: Administrative Reports for 1902. St. Louis, U.S.A., Botanical Garden (an illustrated article reprinted from the "Popular Science Monthly," January, 1903). Also thirteenth announcement concerning garden pupils, December, 1903. * * "Agricultural Economist," December, containing: Motors, and their Probable Influence in Agriculture; Mr. Darby gives an interesting account of the effect of the recent wet autumn on agriculture; there is also a suggestive article on reafforestation. * * "Le Jardin," with coloured plate of new Roses (December 5, 1903). * * "Gartenflora," December, with coloured plate of *Cattleya Mendeli* var. *Lackneri*. * * "The Land of the Silver River," price 6d.; a lecture delivered by Senor Emilio Olsson in the River Plate House, London, on June 8, 1903, with illustrations, map, and valuable information from the latest official data on the Argentine Republic. "South American Journal," 9, New Broad Street, London. * * "The Picture Postcard and Collectors' Chronicle," Christmas Number; price 3d., December, 1903. Supplement: The Seven Edwards (1272-1901). * * Board of Agriculture and Fisheries Leaflet: Farmers' Co-operative Societies. * * "L'Etat Actuel de l'Electroculture": one franc, Ramlot et Frères et Sœurs, 25, Rue Grétry, Brussels. * * "Transactions of the Massachusetts Horticultural Society for the year 1903," Part I., Boston. * * "Bulletin of Miscellaneous Information, Royal Botanic Gardens, Kew." Contents: List of Seeds of Hardy Herbaceous Plants and of Trees and Shrubs. Price fourpence. * * "Manures," by A. B. Griffiths, Ph.D., a practical handbook for the agriculturist, manufacturer, and student. London: Whittaker and Co., 2, White Hart Street.

YOUNG GARDENER'S DOMAIN.—We regret that owing to pressure of other matter, the articles in Young Gardener's Domain have had to be held over.—Ed.



1904.

The year has only just commenced, and so little of it is history that any discussion may readily be included amongst the prophetic, but we would prefer to use the word prospective. In journeying through a strange country we see the prospect before us, but may have little idea of the reality when the enchantment of distance has passed away.

What is the prospect of the farmer for 1904? It is not a very bright one; but there are a few streaks of silver on the edges of the clouds of 1903 which are now happily almost dissipated. The land has not yet recovered from the abnormally wet autumn, but only a spell of frost is required to quite wipe away all the ill effects caused thereby. There has already been sufficient frost to open the pores on the surface, and drier weather has helped to bring matters into a more satisfactory condition. There is still both room and time for improvement, and we by no means despair of a good spring seed-bed for the barley and oats.

It may almost appear a weary reiteration to advise our friends to sow early if possible; but the lessons of the past season bring into such strong contrast the success of early and utter failure of late sowing that it is hardly necessary to do more than draw attention to it.

The prospect for cereal crops is not good. A small area of wheat has been sown, and unless more seed is put in before the end of February the acreage will be less than the low total of 1903. Foreign supplies are on a large scale, and appear sufficient to prevent a rise of price above present values for some time. Unless, of course, the threatening war cloud bursts, when an artificial speculative boom might be expected, and which farmers would be well advised to take advantage of if it should occur by selling on the rising market. Wars do not last long nowadays, and the holders of spot wheat will have the advantage. The barley trade has not been very encouraging of late. The destruction of a large portion of the English crop of 1903 has not produced a compensating increase in price for the remainder, and stagnation is the only word to describe the trade at present. The brewers have been buying public-houses at ridiculous prices, and are making the farmers pay for them, the large importations of foreign barley giving them great assistance in putting the screw on the British seller. Farmers must see that foreign barley is not left out when the new tariffs are finally considered. The man who gives up barley growing in favour of an oat crop is not likely to be much better off, for electric tramways and motor-cars are already exercising a strong influence on the market for horse food. Beans, too, will be similarly affected, though recently they have kept a fair price through the world's production having been reduced.

Potato growers have gone through such an experience as will make many hesitate to continue planting. This will very probably tend to curtail the acreage of 1904, which will also be adversely affected by the high price of seed. There is an especially bright prospect for growers of early and second early kinds, as the supply of old Potatoes in June must be very small, whatever it may be in April and May.

The new year has been marked by a new and highly desirable move in connection with Potato culture—viz., the formation of a National Potato Society. We have so many national societies that it is somewhat surprising that the Potato has been so long neglected. Once begun, we hope that the new society may be of great benefit, not only to Potato growers, but to consumers as well. To attain the greatest public benefit it is desirable to carry out thorough tests of new varieties. Exhibition tubers are all very well as such, but we have found them very expensive things to grow. We once gained a 10s. prize for twenty-four varieties at a flower show, and that prize cost us quite £5. None of the kinds were worthy of further cultivation. The list of officials of the new society reads very well, and we wish it every success. If it does nothing more than put an end to the present insane, and in some cases unprincipled,

booming of new and untried varieties it will deserve well the applause of the agricultural world.

Coming to live stock, we find the prospect particularly bright; there is plenty of present food, and a promise of excellent pastures for next summer. Artificial foods are cheaper than they have been for some time; but, better still, there seems every reason to expect firm prices for meat. The foreign competition which has such a great and sustained effect on grain prices, and has threatened to exert an equal effect on our meat markets, has apparently shot its bolt as regards its influence on the latter. The consumption of meat has increased fully as fast as the importations, and at the present time beef, mutton, and pork are all dearer than they were a few years ago. It is evident that the limit of price at which meat can be profitably imported is much higher proportionately to old prices than it is in the case of breadstuffs, and this fact is most encouraging to both breeders and feeders.

Success has attended the efforts of dairy farmers to combine for mutual benefit, and it is not likely that milk will be cut down in price as it has been. The day of dear winter butter seems past; but summer prices are much firmer than they were, partly owing, perhaps, to the improvement in dairy management. One shilling and a penny per pound as an average for the year should easily be reached, and this is quite up to the price of the last generation.

Eggs are quite as dear in winter, and dearer in summer; whilst poultry is in excellent demand all the year round. At one time old hens were very bad to sell, but now there is a steady sale for them at as much as we once got for good young fowls. There will be plenty of cheap corn this spring, and egg production must pay those who embark in it.

Work on the Home Farm.

There is very little to chronicle of the doings on the farm since the New Year came in. The weather has been more like April than January, and wheat has just been drilled in this parish. If the extreme cold in New York travels over here that wheat may be a long time in the ground.

Another farmer is copying the early bird by beginning to cross fallows, but as they have been ploughed little more than a month his action seems a little previous. We have just seen an operation which we hope never to see again, viz., a plough engaged in burying an oat crop which had never reached the stage of tying-up, and had lain rotting since it was cut. Such failures are a loss to the community as much as to the individual farmer.

There is more activity amongst Potatoes. Buyers are numerous and prices steadily rising. The railway stations are much busier now farmers are beginning to deliver their Potatoes. Since November there has been very little threshing done, and January sees no improvement in that respect. Probably all the well harvested corn has been marketed, and farmers are chary of touching the worse lots. They may prefer ignorance to knowledge. We were talking to a young farmer who is about to thresh some beans. He says he knows they will be in soft condition, but his oats would be worse, and he must realise something. We should like to commence ridging for Potatoes, but a little more frost on the land first would improve it, and help to make a better job. If frost does not come before, we shall probably start next week.

Roads are in a bad state, and the team horses are having a hard time. We have more manure to lead, but the roads are too heavy. Turnip folds have been very muddy again. We have only had slight rain, but the effect is that of a down-pour. The ewes are on grass again, and are having as much hay as they can eat. They are also receiving $\frac{1}{4}$ lb of linseed cake per diem. We are increasing the cake allowance to the hogs from $\frac{1}{4}$ lb to $\frac{3}{4}$ lb, or rather, we are adding to the $\frac{1}{4}$ lb of cake $\frac{1}{4}$ lb of malt culms and barleymeal in equal proportions. They will be on swedes shortly, and then the ration will again be changed.

Legal Notes: Potatoes Disconform to Contract.

In the Arbroath Sheriff Court, Sheriff Lea gave his judgment in an action at the instance of Andrew Gilruth, farmer, Seaton of Auchmithie, against William Guild, farmer, Wardnook, Carmyllie, for the sum of £40 for breach of contract in respect that defender had sold to pursuer a ton of "Up-to-Date" Potatoes, which, it was alleged, proved disconform to contract. His lordship finds that the Potatoes in question were mixed to such an extent with another variety of Potatoes that they were disconform to the description of Potatoes bargained for between parties, and that, in consequence of the mixture of varieties, the crop, amounting to some five tons, was depreciated considerably in value. His lordship assesses the damage sustained by pursuer at £5, and awards him expenses.

All Seeds sent Carriage Paid on receipt of remittance.

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JAPANESE LILIES.—AURATUM, 12, 3/6; large, 12, 5/6; LONGIFLORUM, 12, 2/6; large, 12, 3/6; ALBUM or RUBRUM, 12, 6/-; TIGER, 12, 5/-; BEGONIAS, Gold Medal Strain, 25, 4/-; 100, 15/-; Double, 25, 6/-; 100, 20/-; GLADIOLUS Gandaveusis (large), 25, 3/-; 100, 10/-; Scarlet, 25, 2/6; 100, 8/- Carriage Paid.—W. PERRY, 5, Brickhill Lane, Upper Thames Street, London.

HORTICULTURAL LESSONS WANTED. Lady requires thoroughly grounding in Horticulture and Botany, view to passing R.H.S. Examination. Private Home Lessons in London.—"H. S. E.," Messrs. Deacon's, Leadenhall Street, E.C.

CHOICE NEW CHRYSANTHEMUMS.—Catalogue of over 800 varieties including some of the finest Novelties for distribution in the Spring of 1904, sent free on application. Prices moderate. Stock guaranteed free from rust.—J. W. COLE, Midland Road Nursery, Peterborough.

HEATING APPARATUS for Greenhouses and other Buildings. Catalogue free of all kinds of Hot-water Pipes, Wrought and Cast Iron Boilers, Radiators, Cisterns, Pumps, Baths, &c.—JONES & ATTWOOD, Stourbridge.

PURE WOOD CHARCOAL, Specially Prepared for Horticultural use. Extract from the *Journal of Horticulture*: "Charcoal is invaluable as a manurial agent; each little piece is a pantry full of the good things of this life. There is no cultivated plant which is not benefited by having Charcoal applied to the soil in which it is rooted." Apply for Pamphlet and prices to the Manufacturers—HIRST, BROOKE & HIRST, Ltd., Leeds.

No. 1730.—VOL. XLVIII, THIRD SERIES.

CLIBRANS

NEW SINGLE

CHRYSANTHEMUMS

For 1904.

Prices quoted are for young plants in 2½ in. pots.

WE append brief descriptions of a portion of our set of new single-flowered Chrysanthemums for 1904. They contain many of the loveliest varieties that have yet been raised, and embrace a splendid range of colours.

Agnes.—Pure white, somewhat cup-shaped flowers, produced in fine sprays; dwarf bushy habit. 2/6.

Annie Hill.—Crimson scarlet, very fine, remarkably free in bloom; dwarf habit. 2/6.

Bank Hall Yellow.—A grand variety, the flowers are 5 to 6 inches across. 3/6.

Bronze Beauty.—Bronze, with a ring of light yellow round the disc; very dwarf and free. 3/6.

Clibrans Star.—Pure white star-shaped blooms, a lovely variety; free and of good habit. 2/6.

Corrie.—Bright yellow, petals are of great length; excellent for decorative use. 3/6.

Daisy.—Crimson lake, with a ring of white round the disc; very pretty and attractive. 2/6.

Elena.—Bronze yellow, very large flowers; dwarf and free. 2/6.

Elsie.—Yellow, shaded bronze; the individual flowers are 5 to 6 inches across; very fine. 3/6.

Harold.—Yellow, a superb variety; dwarf habit and free flowering; excellent for cutting. 2/6.

Hector Hampson.—Indian red, small flowered, but remarkably free; dwarf habit. 2/6.

Mildred Bradburn.—Bright yellow, with two rows of petals; very free. 2/6.

Miss Blodwen Jones.—Pure white, with two or three rows of petals carried on strong, wiry stems. 2/6.

Miss E. Leigh.—Rosy-pink, with a ring of white round the disc; a fine flower of good form. 3/6.

Miss F. Howarth.—Snow white, with a greenish disc; produced in fine sprays; dwarf and free. 3/6.

Miss Hebe Hampson.—Pure white, with two or three rows of petals; grand variety. 2/6.

Miss R. W. Willan.—Pure white flowers produced in fine sprays; excellent for decorative use. 2/6.

Miss S. A. Ball.—Apple-blossom pink; a charming variety. dwarf and free. 2/6.

Mr. Geo. Rhodes.—Rosy-purple, a distinct new colour in this class; very free bloomer. 2/6.

Mrs. Frank Harris.—Terra-cotta, passing with age to a golden yellow; a fine variety. 3/6.

Mrs. Geo. Rhodes.—Soft pink, produced in fine sprays, very fine, excellent for decorative use. 2/6.

Mrs. G. P. Dewhurst.—White, flushed rose; a variety that will be in good demand. 3/6.

Mrs. H. Broom.—Bright yellow, the flowers are 6 to 7 inches across, the largest-flowered single yet introduced. 3/6.

Mrs. H. Champ.—Pure white, very free, dwarf habit; one of the best. 3/6.

Mrs. H. J. Hampson.—A pretty shade of fawn, distinct and beautiful; very free. 3/6.

Nellie Davenport.—Pure white, very large, dwarf and free. 2/6.

Nora Turner.—Bright yellow, produced in fine sprays; dwarf and free; a grand variety. 3/6.

Rosalind.—Sulphur-yellow, with but one row of petals; large and fine. 3/6.

Souv. de Gladys Ashbrook.—Pink, with a ring of white round the disc; free and dwarf. 2/6.

Tillie.—White shaded pink, with long petals; excellent for decorative use. 3/6.

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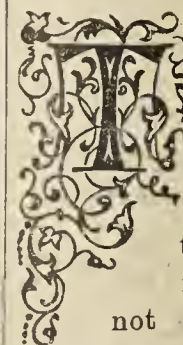
ALTRINCHAM & MANCHESTER



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THURSDAY, JANUARY 21, 1904.

Novelties.



THE so-called craze for novelties in fruit, flowers, or vegetables, although condemned by a few, cannot but be regarded by the many as a sign of vitality in the gardening world. Without it, indeed, cultivation would be, to not a few, comparatively insipid—wanting that zest which, like the Onion in the salad, animates the whole. Fortunately, apart from commercial enterprise, there are amongst the great army of gardeners those who never rest content with doing very well when they feel they can do better; and these, by their prescience, energy, and skill, are ever striving to gain something bigger, better, brighter, or more generally acceptable to the community at large.

"Like begets like," but the marriage of the unlike produces now and again some startling surprises in horticulture, for, not rarely in dealing with the subtle forces of Nature, it is the unexpected which happens. There is, too, always a delightful uncertainty in this mild form of gambling which panders to the spirit of speculation inherent in the human race. In a brief glance over the subject—at massive Chrysanthemums, exquisite Roses, faultless fruits, and satisfying vegetables—one might infer that man's ingenuity had pretty well exhausted Nature's possibilities; a broader view will show that there still remain height unmeasured and depth unsounded in the great and glorious kingdom of silent life.

With the elaborately exhaustive and highly ornate seed catalogues, the dispersal of which over the length and breadth of the land must be almost as weighty a business to our mail carriers as the Christmas post, the influx of novelties is found to be still as great, if not greater than before, and the cry is, "Still they come." It is a matter, too, still as perplexing

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

to the selector, and, one may add, still as disappointing to some who invest at haphazard and afterwards fall short in according common justice to things which, so far as they are concerned, are on trial. Disappointment brings with it the hasty verdict of deception, and many a new born novelty presented under the pomp of a high baptismal name is condemned as being brought into the gardening world under false pretences. The grower has been deceived, he will tell you; that may be so, but often it is that he deceives himself to more or less extent by forming a false judgment based on insufficient trial.

It should not be lost sight of that the novelty raiser has strained every point to develop by high cultivation the best traits of character in his protégé, whilst the buyer, bitten before mayhap, and biassed now maybe, fails to give it even ordinary attention. He should not have what he does not intend to try fairly, may be said. Exactly so; but employers often settle those matters independently of their gardeners.

Of the novelties annually offered, that all are not improvements goes without saying. Some, at least, of the grand acquisitions are doomed to disappear after an expense of time and temper in trying them, but, as against that, a single season can seldom be regarded as a fair test of their merits, and it would probably take three years in outdoor phases of culture to reduce those merits to a fixed quantity, and show what real advance has been made. The gardening world at large is much indebted to the exhaustive trials which have been given to various subjects of more or less importance by public gardening institutions, and it would be well if all novelties could be similarly proved, and not sent out until thus hall-marked. By comprehensive comparisons we reach definite conclusions. In but few private gardens is there time or facility to carry this out decisively; yet in larger ones possibly more might be done than is done to supplement public work, and to the high-class gardener the process should not only be intensely interesting, but have a fascination peculiarly its own. Of its value to cultivators at large there can be but one opinion, provided that the method of testing is thorough and systematic, and conclusive results, so far as the elasticity of the subject permits, are clearly and concisely stated in the gardening papers *pro bono publico*.

Who could have predicted that the craze for novelties would have developed into the acute form of Potatomania now in evidence? It is now but stale news to quote from the press marvellous prices which have been recently obtained for new varieties of the noble tuber, but a cutting from one paper at hand says "seven pounds of Eldorado Potatoes sold in Lincoln market for £700, the purchaser re-selling a portion at the rate of £150 per lb." Surely one must go back to the Dutch Tulip mania for a parallel to it, and how well it exemplifies that, in some respects, even on this subject,

We are the same as our fathers have been;

We see the same sights that our fathers have seen;

We drink the same stream, and we feel the same sun,

And run the same course that our fathers have run.

—A. N. OLDHEAD.

Grading and Packing Fruit and Vegetables.

Intensive cultivation has been carried in many places to a high pitch of excellence, and British horticulturists pride themselves, justly, upon their skill as producers. Admirable and necessary as the highest cultivation must always be, yet something more is required to ensure complete commercial success, namely, the conveyance of the produce in the best possible style to the market, or to the consumer. It is at this point that too many fail, and a material proportion of unprofitable sales is mainly attributable to neglect in presenting goods in the most satisfactory manner. Proofs of this defect are evident in every British market, and commonly the produce of the home grower may be seen in direct contrast with that of his foreign competitors, to the conspicuous disadvantage of the former. It is the purpose of the following notes to give some directions that, with the exercise of intelligence in carry-

ing them out, may assist in improving the selling value of both fruits and vegetables as produced in this country.

To aid in grading fruits to the best advantage, it must be assumed that the preliminaries of successful cultivation have received due attention. The selection of the best varieties, suitable sites and soils, with every possible care in protecting the trees from attacks of insects and diseases, demand the cultivator's utmost skill and unceasing watchfulness. Finally, in preparing for the actual work of grading, the method and time of gathering should receive the strictest attention, or much of the other labour will be reduced in value. It is not sufficiently recognised how readily all fruits are injured by rough handling. Even hard, unripe Apples and Pears are soon bruised, and not only do these marks show as serious defects in the appearance of the fruits, but the keeping qualities are also affected.

One general rule is applicable to all fruits, and that is, they should never, if it can be avoided, be gathered when they are wet, especially if they have to be packed for sending a long distance. In preparation for sorting, the fruits should be taken and carefully spread on a table or bench, which may slightly slope to the front, and should be of a convenient height for the packer to stand at. The soft fruits must be conveyed to the sorting room in shallow trays or baskets, so that they can be graded direct without turning them out. When experienced hands are employed, some degree of sorting can be done at the time of gathering, thus saving further handlings or removal of the fruits, and the grower will in every case endeavour to reduce this to the minimum.

Several matters have to be considered in the actual work of grading, and an intimate knowledge of the characteristics of varieties is essential to the best results. The effects of seasons on large crops also demand attention; for the second grade of one crop might rank as the first of another. It is impossible to lay down a rule that would constitute a standard equally reliable under all conditions, but a general idea can be given of the relative values of different grades under similar circumstances.

The points of importance in classifying the best fruits are: (1) Freedom from injuries and blemishes; (2) Good size and even form; (3) Colour; (4) High quality with ripeness.

The first two are essential to all high-class fruits, and no defective, distorted, or undersized samples should be allowed in the leading grades of any kind. The third quality is a special one, which always possesses a marked value in fruits for dessert, and even amongst some used for cooking or preserving, as in Apples, Red Currants, Raspberries, and Strawberries, for example. A richly-coloured sample, though only of moderate size, if free from defects, will often possess a higher market value than larger and duller fruits. Cox's Orange Pippin, for instance, if sold in two grades, one large and dull or greenish-yellow, and the other a size smaller, but in its best colour, will command the larger price for the latter; and this is true of many other fruits where colour is a characteristic that is sometimes deficient in the larger sizes.

As regards the fourth point, mere size may also be a secondary consideration, provided the fruits are choice, in perfect condition for immediate use, and free from defects. This especially concerns small packages of dessert fruits, such as the finest Pears, Plums of the Green Gage type, ripe Cherries, Peaches, and Nectarines. A special market must be at command for such samples, or they should be sent direct to the consumers or retailers.

The bulk of fruit grading will, however, be mainly concerned with variations in size, provided the essentials of good form and freedom from defects be secured. It is of the utmost importance to ensure that each grade be as uniform throughout as close attention can accomplish, and then the full value of the work is most likely to be obtained.

A quick eye and some practice under good guidance soon enable a packer to select the various sizes in a uniform manner. Apples in particular can be readily graded into several sizes according to the variety and the crop. Occasionally four well-marked grades may be obtained; in other instances perhaps three are secured, and sometimes only two are obtainable. The difference of a quarter of an inch in diameter will constitute a well-marked grade. An American Association has adopted as the minimum standard for first grade Apples of the largest types, $2\frac{1}{2}$ in diameter; while for the smaller types $2\frac{1}{4}$ in is the minimum diameter for first grade fruits; in each case a $\frac{1}{4}$ in is allowed between the firsts and seconds. In practice it is found almost impossible to adhere to such exact grading; the general standard and range in size of the crop or variety must be judged, and the graduation founded upon this. These remarks especially refer to Apples for cooking, or dessert Apples equally well coloured; but what has been already said about the value of colour must be remembered, and a special grade selected of uniform size where there is a proportion of larger fruits deficient in that respect.

Most of the details regarding Apples are also appropriate to the grading of Pears, but as a larger proportion of these are used for eating than cooking, they are more adapted for disposal in small packages, and hence repay the greatest attention in uniform grading. Several qualities can usually be obtained from one crop, and it generally pays best to sell in two or three grades, only those rejected in the selecting process being disposed of in bulk. Even when large crops from old orchard trees are being dealt with, a few dozens of the finest fruits carefully packed will help to raise the total returns considerably.

Stone fruits may be selected in various grades. Plums for cooking can thus be sorted into two or three grades, the largest fruit commanding the best market. A good medium size is in demand for bottling, and the smaller sizes are utilised in ordinary cooking or preserving. Dessert Plums and Cherries are readily graduated on the same method, the finest in boxes or small packages and the others in bulk.

Soft fruits, such as Strawberries and Raspberries, are worthy of equal care, the former being sorted into at least two grades and sometimes into more. The best are placed in punnets, the next in small boxes, and a third grade can be sold in boxes or baskets holding from 6lb to 12lb. Raspberries may be conveniently divided into two qualities whenever a special sale can be commanded for the best fruits, either in punnets or small boxes.

Nearly all other fruits also admit of some grading, even though it be only to the extent of excluding defective and malformed specimens; the results yield a satisfactory reward for the labour and expense.

The benefits derivable from careful and systematic grading are by no means confined to fruits, as vegetables also afford considerable encouragement to those who strive to make the most of them in the same direction. Especially is this the case with root crops, though in a general way the sorting adopted is of a very rough character. Potatoes, for example, are usually picked up in three sizes, the large tubers for sale, the seconds for sets, and the small tubers to be used as food for stock. The large size should be again sorted into two or three grades; it is with them as with Apples, a comparatively small proportion of coarse irregular tubers spoils the appearance of a large consignment. Even shape and uniformity of sample possess a distinct market value, and a medium sized Potato having these characteristics, together with good quality, will bring a better return than huge distorted tubers of which size is the only recommendation. If an extra 6d. per bushel or £1 per ton can be secured by such care it often means, with a good crop, sufficient clear gain to more than pay the expenses of cultivation.

A distinction can be made between the best or earliest Turnips and Carrots and the ordinary quality or crop in bulk, by marketing the former in bunches, while the latter are sent in bags or baskets. Onions, too, can be graded in several ways, the best being bunched or made into "ropes," while smaller sizes are sold loose, the smallest ranking as pickling Onions. It is always advisable to have several sizes, each sample fairly uniform, as some buyers have a preference for medium size bulbs and others for large ones. In selling small quantities by weight the retailers have a difficulty with the largest Onions, and usually find the medium size more convenient. If roots are prepared for sale by being thoroughly cleaned it is a great help, and in any case wherever grading is followed, all the best qualities should be so treated, or the chief part of the labour will be nullified.

Peas and Beans should always be graded. Yet this is seldom done by the grower, and, as with many other vegetables, it is usually left to the retailer. Large, well-filled pods of the former are always in demand, and if the colour is good their value is enhanced. But they are too often gathered without due care, and a number of insufficiently developed pods materially lower the value of the whole, while reducing future gatherings. Two or three grades of Peas can be readily formed, according to the condition of the crop and the varieties, some being much more even croppers than others. In supplying consumers direct daily or at regular intervals, it is now becoming the practice to shell the Peas, grade them by means of sieves, and consign to the purchaser in small boxes. Dwarf Kidney Beans and Scarlet Runners can be graded by selecting the long, straight, and even pods for the best samples, in smaller quantities, the bulk going for sale in bushel or half-bushel baskets.

(To be continued.)

The Board of Agriculture and Fisheries would be glad if recipients of this leaflet would make it known to others interested in the subject. Copies may be obtained free of charge and post free on application to the Secretary, Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W. Letters of application so addressed need not be stamped.

Planting for Bees.

Hive bees, as a rule, succeed in accordance with the supplies of raw material—that is, of flowers bearing pollen and nectar, within reach of the domiciles, fetching being an important factor, for according to distance must be the expenditure of force and the amount of materials collected, utilised, and garnered.

Pollen, as everyone knows, is the coloured dust found in all mature flowers, except the few that are entirely female. It is found in the anthers, or thick heads of the stamens, and is set free, in the form in which it is best known, by the bursting of the walls that surround the spaces in which it is formed, and in which it is retained till ripe. In this state it is available for fertilisation, and for bee use. The pollen collected from flowers mixed with a small quantity of wax, which is elaborated from honey, constitutes the food of bees and their larvæ, and this food appears to be modified in its composition according to the sort of individuals it is intended for. The substance called *propolis*, collected from the opening buds of Poplars and other trees, is used by bees for lining their hives, stopping holes, &c.

Nectar is the sweetish secretion of various parts of blossoms, which forms the staple food of many insects, notably bees, butterflies, and moths. Nectar is not, as commonly supposed, identical with honey, although as furnished by many plants, it is the material from which bees make the latter. Analysis has shown the sugar of nectar to be, very generally, cane sugar, while that of honey is grape sugar, consisting of dextrose and levulose in equal proportions. The conversion of the cane sugar is brought about by an admixture of salivary secretion at the time the nectar is sucked up. This conversion has been well made out in the case of bees, and it is probable that butterflies and moths effect the same changes as the bee.

Bees also collect *honeydew*, which is a sweet, sticky substance varying a little in chemical composition, but all honeydew contains a considerable quantity of sugar, including mannite and cane sugar, and it is to these that the sweet taste is due. The honeydew may result from the punctures and secretions of insects, which is certainly one cause of honeydew; or a secretion from the plant, and analogous to the secretion of similar fluids in nectaries on various green parts of many plants, particularly on the stipules of Beans, and it is more abundant on woody plants than on herbs.

Sycamores and Limes are particularly noted for deposits of honeydew on the leaves and ground under or adjacent, and there is no question of bees utilising honeydew, the secretion being most abundant when the weather is warm and dry, and in such cases the secretion being excessive, must be injurious to the plant, this being weakened by the abundant exudation of sugars. The honeydew, however, is very attractive to insects, especially to flies, and, at night, to moths.

Bees, therefore, depend entirely upon plants, and particularly their flowers, for subsistence. What bee-keeper studies the requirements of the bees by planting suitable plants, shrubs, and trees which in their season will yield pollen or nectar? The reply, as seen in the gardens of bee-keepers generally, must be in the negative. Most bee-keepers are more concerned about near-by fruit plantations and orchards, copses and woods, fields of White Clover and Beans, and in some cases great stretches of Heather, so anxious are they to "reap where they have not sown," than to provide, as far as circumstances admit, on their own or occupied ground, provender for the bees.

Many bee-keepers, especially cottagers, have not the means or opportunity of doing much in planting, it may be a shrub or tree, which in its season will be of great benefit to the bees. Fortunately there are few districts in which there are not gardens attached to residences wherein flowers are grown, not for bees, but for ornament from an early to a late period of the season, and these are laid under contribution for pollen and nectar by the bees in the vicinity.

Then there are great breaks of grass in the relatively open and rough, where Crocuses would bloom grandly year by year, and the air there literally "hums" with beauty and sweetness. Squills also do well on grass, so what with space under trees, and grass not kept under machine, utilised, bees have not far to travel to secure the all-important pollen or bee-bread and nectar early in the season, though the latter may only be sufficient for the daily requirements of the bees. Of course, Daffodils are charming on rough lawns or parts of pleasure grounds not usually mown until the foliage of the Daffodils has ripened.

In gardens proper place is, or should be, found for Snowdrops, Winter Aconites, and Crocuses where there are bees, for bee-keepers should provide as much of their own provender as possible, or consistent with a due regard to other requirements. Cottage gardens are usually gay with spring flowers, and it is bringing into their midst the *trade* that ruins the

cottager's prospects, for the trade is practically a thief thriving on what should be confined to residents in the locality. The pollen and nectar of flowers as much belong to the owner as the plants that produce them, therefore the so-called bee-farming is only a sort of plunder when brought into direct antagonism with the bee-keeping of landowners, farmers, and cottagers. The bee farmer brings nothing into the locality but bees and appliances, provides nothing for their keep, and takes all away excepting, perhaps, "foul brood."

Then the keeper of bees will have Wallflowers galore, appreciated alike by rich and poor, and when they are in bloom much visited by bees for the pollen, and also some nectar. *Arabis alba*, so much used as an edging in cottage gardens and in gardens generally for spring bedding, is much frequented in spring by bees for the nectar. Tulips, especially the Duc Van Thol section, produce abundance of pollen, which the bees much appreciate. *Aubrietias*, much used in spring bedding and on rockwork, are also greatly loved by bees. *Limnanthes Douglasi* probably attracts more bees than any other spring flower, and it, too, is a popular plant for spring bedding. Everybody has room, or ought to have, for the forenamed flowers, and they should be grown extensively by bee-keepers.

Pass we now to trees, of which first and foremost is the Palm or Goat Willow (*Salix Caprea*). It produces more pollen than any other tree, and comes at a time when it is most required. Of course, it is the male plant that produces the catkins bearing pollen, sometimes commencing to flower early in February, always before any other Willow, and lasts for several weeks if only the vandals keep "hands off," a thing almost impossible by town denizens when they "take their walks abroad." It will grow in almost any place, but does best by water, and has a handsome appearance, as, indeed, have all the Willows, and the male trees yield abundance of pollen.

Sycamore, and, indeed, all the Maples, or *Acer* sp., are capital bee trees, yielding pollen and nectar, and, be it said, honeydew. For shelter the Sycamore has few equals, is a capital field shade tree, and its timber is valuable. Plant it for man, beast, and bees.

Flowering shrubs or dwarf trees provide some pollen and nectar, the bees not lacking provender from that source and fruit trees, wild and cultivated, up to the blossoming of Clover, the white, plentiful even in roadsides; and after the Sweet Clover comes the air-laden fragrance of the Limes.

The hum of bees on the flowers of the Lime tree is a pleasant sound, and fortunately this tree is not uncommon in villages, the rectory or vicarage grounds containing trees arrived at floriferous age; some, indeed, aged, and not cut or lopped periodically, as common in the case of Limes by roads and streets in urban, suburban, and even rural districts, but with towering, spreading heads that perfume the air in summer for man's delight, gladdening the "heart" of bees, and yielding a rich nectar for harvesting.

Thus far we have only mentioned three trees as of peculiar and particular value for bee food. The Sallow, Goat, or Palm Willow (*Salix Caprea*), which grows naturally, for it is seldom planted, in damp or wet places, and largely dispersed over the British Isles. The Sycamore or Mock Plane tree (*Acer Pseudo-platanus*), that is oftener naturally placed than planted, is found in hedgerows and in fields, there not being a deciduous tree so well adapted for standing singly in rough, exposed places, and though a deep, soft, dry soil is most suitable for it, it will grow in soils of very opposite qualities, alike thriving by the sea as inland, even at high elevations.

The Lime Tree or Linden (*Tilia vulgaris*), not indigenous, but naturalised in Britain. But the term Lime tree is applied to the Broad-leaved (*T. platyphyllos*), and is a native of the British Islands, also to the Heart-shaped (*T. cordata*), found here and there in woods in Britain, and is regarded by some authorities as a truly indigenous species. The three species flower successively. *T. platyphyllos* is the first to bloom; *T. vulgaris* begins to flower when *T. platyphyllos* is nearly past; and *T. cordata* is the last of the three to flower. Thus all three should be planted so as to afford bees as long a nectar harvest as possible. They affect a good loamy soil, damp rather than dry. Indeed, the Lime is a tree of the plains rather than of the mountains, hence not suitable for very exposed situations.

In most localities there are positions suitable for all the trees named. The Sallow flowers in early spring, the Sycamore in late spring or early summer, and the Lime in the heyday of summer. Last of all comes Ivy (*Hedera Helix*), which, in the sunny days of autumn is laden with golden dust and nectar, swarmed to by flies, and butterflies, and bees, and, at night, by moths.

In tree form, and in relatively open places, the Ivy only yields its wealth of bloom. In pleasure grounds, on old trees or trunks, in hedgerows where it may have overcome a Hawthorn or a Holly, or in woods on trees it may have overgrown, exists this "rare old plant," and the preservers of such examples, clad in Ivy green, are real benefactors, especially to the insects called bees.—G. A.



Cypripedium × *Godseffianum*.

This hybrid comes from *C. Boxalli* and *hirsutissimum*, the former being the pollen parent, and it may be seen in a number of collections. The dorsal sepal is yellowish, suffused with brown, being darkest at the base. The petals are similarly coloured, and tipped with mauve-purple, the pouch being soft brown.

Calanthe Veitchi at Ashby St. Ledgers.

That this variety of *Calanthe* revels in the treatment given it by the present gardener at Ashby St. Ledgers (Mr. Camm) is shown by the house now in full flower. Most of the bulbs measure from 11in to 13in long, and from 8in to 11in in girth at the base, being stout, straight, and clean. They carry in most cases one spike at the base, one three or four inches up, and one at the apex of the bulb, each with from thirty to forty-five bright rose flowers. One bulb was found on counting to have 111 good-sized flowers on it. Anyone seeing the effect these now make arranged with a groundwork of *Asparagus plumosus* edged with *Panicum variegatum* cannot but think its popularity is well deserved. I may add that *Begonia socotrana* is evidently quite at home here. These are just beginning to open their flowers. The plants are in 32-sized pots, and are about 2ft through and the same height, giving good promise of making a grand display shortly, the cultural details of which I shall be pleased to give if it be thought acceptable.—E. F.

[We would welcome the notes, for this *Begonia* deserves the fullest recommendation.—Ed.]

Calanthe Veitchi.

Calanthe Veitchi has decided attractions over the other well known and popular varieties of *Calanthe*, chiefly on account of its effective brightness at this season of the year, and the gracefulness of its long, arching spikes of rose-coloured flowers, which greatly increase its value for table and drawing-room decoration during these dull months of the year. I do not wish to depreciate the beauty of other varieties, although I lean greatly in favour of *C. Veitchi* for the foregoing purposes. The period for the annual repotting is best left to the discretion of the cultivator owing to the various stages and condition the bulbs may be in. When the new growths are an inch or two long is most opportune for this work.

It is a good plan to shake all exhausted soil from the bulbs and cut the dead roots off, leaving about an inch, this will enable them to be made firm during the process of repotting. The bulbs must be closely examined for scale with a stiff brush and soapy water at this stage, or a great amount of trouble may ensue when in active growth. Where space is limited, this is best performed as they pass out of flower, and the bulbs placed closely together in shallow boxes, with some sphagnum moss placed round the base of each bulb, and kept in a warm temperature. One very well suited is the stage of the early vinery, this will have an increased temperature by the time these subjects have finished their flowering period.

When large quantities are grown it is a saving of space to pot five bulbs into a 32-size pot. The smaller ones are best potted singly into pots that suit their size—this enables them to have special treatment, which would not be the case if potted with more robust bulbs. Care must be exercised to have the pots clean; these should be half filled with clean crocks, with some sphagnum moss placed over them. The soil should be comprised of three parts fibrous loam, one part well decayed Oak leaves, and half a part selected peat; with this should be incorporated some chopped sphagnum and potsherds and a sprinkling of silver sand. When potting, the soil should be made moderately firm, and brought within an inch of the rim, the bulbs being then placed on the surface; add more soil and press firmly round the old roots, permitting the base of each bulb to be just under the surface.

They may be placed then in a temperature not lower than 6deg at night, with a corresponding increase by day. Water should be given very sparingly, or a wet, stagnant condition of the soil will be the result, thereby growth will be badly affected. When growth is observed to be making progress, and the roots are pushing round the sides of the pot, waterings may be increased, and when fully established weak applications of liquid farmyard manure, also a top-dressing of turfy loam, chopped sphagnum, and silver sand will greatly benefit them, as the surface gets washed by continual waterings.

A most important point is to keep them growing without

check by maintaining sufficient heat and atmospheric moisture. The foliage must be protected from direct sunlight throughout the hottest months of the summer. At the approach of autumn water will not be required by the plants to a great extent, and as the season of flowering advances it will be necessary to withhold it altogether.—F. W. Gooch, Surrey.

Cattleya Dowiana.

Cattleya Dowiana is a native of Costa Rica, and as such needs an abundance of heat and moisture during its growing season. I grow this *Cattleya* during summer in our *Dendrobium* and *Phalænopsis* house, 65deg at night. After flowering, which occurs before the bulbs are fully matured, they are removed to the *Cattleya* house, where they are kept moderately moist until the pseudo-bulbs have obtained their full maturity. Then I keep them rather dry and cool, 50deg to 56deg at night, and during January and February as low as 45deg to 48deg during night. This low temperature seems not to injure, but rather tends to keep the plants dormant longer in the spring and counteracts the tendencies to make a second growth in the fall, which would otherwise weaken the plants. A mixture of fern roots and sphagnum, with a layer of charcoal and potsherds in the bottom of the crates, suits them. Crates are better than pots for this variety. A little weak liquid manure during the most active stage of growth improves them greatly.

Cultural Notes : Dendrobiums and Miltonias.

The advice often given to water freely when growth is active has to be taken with a little reserve on occasion, or it may lead to serious results. An instance occurring to mind is the beautiful *Dendrobium Dearei*, the young growths on which are already several inches in length. But the roots are as yet practically inactive, this proving that the growths so far are receiving what nourishment they need from the supply already stored in last season's pseudo-bulbs. Beyond a sufficient supply, then, to keep these plump, very little water is needed.

D. chrysanthum, on the other hand, will usually be in full growth too, but here roots will have probably formed, and the last season's stems will have lost most of their vigour. In this case water in larger quantities is required, and the roots are put forth to look for it. *D. Wardianum* is rather peculiar in its habits. Often long before the flowers are open new growths spring from the base of the old stems, grow a few inches, and then stop, starting again after the flowers are past and growing on to maturity. To water this species too freely before the flower buds are distinctly formed would very probably cause many of the nodes to break into growth instead of flower, especially if accompanied by much atmospheric moisture.

In the intermediate house the popular *Miltonia vexillaria* is already growing freely, and no stint of root moisture must be allowed. Each plant must be looked over separately, and watered just as often as the surface becomes dry, forcing the water through a rose syringe in order that it may reach every part of the compost. This fine orchid is especially liable to the attacks of thrips, and constant attention to sponging is needed or the plants will be overrun.

Occasionally, too, the young leaves will be found adhering to each other, and the thin smooth haft of a budding knife should be used to separate them. Too little heat and light cause this affection more than any other cultural defect, the leaves opening freely in a genial temperature. From a long experience with this very beautiful orchid, I am quite convinced that a narrow and fairly low span-roofed house with side stages is best for it. The pots containing the plants should be stood on others inverted, the surface being covered with ashes kept constantly moist.—H. R. R.

Garden Cities.

The Garden City Association is adding to its membership and its strength each day. Five years have passed since it was first instituted, and the fifth annual general meeting, which was held in Essex Hall, Essex Street, London, on Thursday last, was very largely attended. The speakers were Sir John Gorst, Mr. H. Rider Haggard, Mr. Malcolm Morris, Mr. R. Whiteing, and others, who each approached the subject from a standpoint of their own.

But first we must again explain what is meant by "garden city." What is meant was well set forth by the originator of the whole movement, Mr. Ebenezer Howard, author of the book, "Garden Cities of To-morrow," who spoke last Saturday at the Passmore Settlement in Tavistock Street. He propounded three alternative solutions of the overcrowding problem in London. They were, he said, the pulling down of large buildings and the erection on their sites of smaller dwellings; the removal of the surplus population to the suburbs at cheap rates of locomotion, and the transference of "the crowded-out" back to the land, under circumstances better than those which existed there now. He advocated the third alternative, and cited the examples of Port Sunlight and Bournville as proving that employers had come to the conclusion that it was best for them and for their employés that they should remove their works from congested centres, and take their servants with them, to areas in which they could house them comfortably and supply them with the advantages of the "garden city." Mr. Howard illustrated his convincing discourse with a series of realistic pictures, in which a healthy race of workers and their children were shown to be enjoying the advantages of town and country life combined, breathing pure air, drinking pure water, and living cheaply on the purest of pure diets. But public interest and sympathy are wanted.

And it is to establish "cities" in the country—that is to say, to weave a large amount of country life into town life, by having wide, leafy streets and gardens all around the houses—that the Association of which we write exists.

Sir John Gorst cited the case of children in the North Cannongate School, Edinburgh, from among whom Dr. Mackenzie has selected three grades of boys and girls, and had discovered the remarkable fact that the dullest, least controllable, most unhealthy, were from homes of two-roomed tenements, crowded and filthy flats, almost devoid of sunlight and fresh air. The better the homes, the roomier and brighter they were, the finer were the children; and Sir John therefore impressed this case on the notice of his hearers. He thought it a most important thing that just at the moment when the cities were spreading out in all directions, forming new slums in the suburbs, that this Garden City Association had appeared.

Mr. Rider Haggard spoke from the agriculturists' point of view. He had been asked to view the site of the garden city to be made at Hadley, in Hertfordshire. This embraces 3,200 acres, and is thirty-five miles from London. Parts of it are in several parishes. He found it to be most excellently placed to fulfil the objects for which it was intended. The soil is a loam over chalk, and the lower lands are suitable for orchards and vegetable growing. The ground, part of which stands high, is healthy and possessed of considerable surrounding amenities.

The engineers, he found, had been able to get a water supply, from the artesian wells, of 5,400 gallons per hour, and the price of the whole estate, he also thought, was very reasonable, being, roughly, £160,000, or £40 per acre. The estate offers numerous good building sites for persons of moderate or small means. He was one of those who had been sceptical of the practicability of the movement, but since seeing the estate and the work being undertaken, his views had undergone a very considerable alteration.



Cypripedium × Godseffianum.

NOTES & NOTICES

Appointment.

Mr. E. W. Dix, for some years general foreman to Mr. Ashton, Lathom Park Gardens, Ormskirk, has been appointed head gardener to Lady Chermiside, Newstead Abbey, Notts.

Kew Gardeners' Social Evening.

The seventh annual social meeting was held at the Boat House, Kew, on January 15, when about 130 were present, and a very enjoyable evening was spent. Dancing commenced at 8 p.m., with songs, duets, violin solo, and Scotch reels. Various games were also introduced for those who did not dance, and after singing "Auld Lang Syne" the company dispersed at 2 a.m. The weather was everything that could be desired, which goes a long way towards making the evening pleasant; but great credit is reflected on the committee and on Mr. Halliburton, hon. sec., and Mr. Bolton, M.C., who carried out their various duties in a very able manner, and thus made it so great a success. Among the most notable features in the song programme were "Angus Macdonald," beautifully sung by Miss Morris; violin solo, "William Tell," by Mr. Smythe; "Bedouin Love Song," by Mr. Briscoe; and the vocal duet, "When the Lights are Low." The comic element was well sustained by Mr. Housego; and the Highland fling and Scotch reel was greatly appreciated by the southrons.

Kirkbean and District Show, N.B.

The annual meeting of the Kirkbean and District Show Society was held in the Jubilee Hall, Carsethorn, N.B., on January 16. Brief reports were submitted by the secretaries and treasurer, these showing that the results of the past year's working had been, upon the whole, very gratifying. The show had been the best yet held by the society, and the funds were still in a good condition, although the death of the late Miss Stewart, of Southwick, had deprived the society of a valuable supporter and generous contributor to its funds. The following office-bearers were re-appointed: President, M. W. Houlston, Arbigland Gardens; secretaries, Messrs. S. Arnott and J. Harris, Carsethorn; treasurer, Mr. J. Gibson, Carsethorn. A large committee was also appointed. The subject of enlarging the area of the show district was considered, there being a distance limit in several classes, and it was ultimately resolved that the show should be quite open, unless in cases where the donors of special prizes desired to confine them. It was remitted to the committee to draw up the schedule and fix the date of the show.—A.

Calderwood Castle, Hamilton, N.B.

The beautiful neighbouring estate of Calderwood Castle, lately the seat of Sir Wm. Maxwell, has been bought by the Scottish Co-operative Society, Glasgow. This estate, with its fine castle, well-situated gardens, and lovely grounds, is an ideal residence for a nobleman. Destiny, however, has appointed its fate otherwise. The utilitarian necessities of modern times seem to have no place for the development or extension of the good old system which gave birth to our grand policies and baronial residences. Here and there, forsooth, one slides into the great maelstrom of commercial enterprise, and the once historic seat of opulence disappears for ever. The inexorable exigencies of a great commercial city such as Glasgow perhaps condones to a certain extent for the growing claims of late years in this direction. Are not many of her finest parks, estates, and her mansions which, perforce, succumbed to this same inexorable law?

Is there not something extremely sad in this order of an increasing civilisation. Britain cannot afford to dispense with their landed proprietors. However much they abuse their artistocracy, they in reality at heart are upholders of them. Probably in a few centuries hence, when waifdom of our large cities is planted among the beautiful domains, so extensively placed all over the kingdom, we will be nearly upside down with our cousins across the herring pond. It is comforting that the possibility is so far distant.—D. C.

Mr E. H. Wilson.

It is very satisfactory to learn, as we did a day or two ago, from a personal friend of Mr. Wilson's (Wilson being Messrs. Veitch's plant collector now in China), that he has reached about a thousand miles higher up the Yang-tze-Kiang river than he was on his former expedition, and that he is finding many of the subjects he went in search of.

Royal Horticultural Society.

The next fruit and flower show of the Royal Horticultural Society will be held on Tuesday, January 26, in the Drill Hall, Buckingham Gate, Westminster, 1 to 4 p.m. A lecture on "Oranges" will be given by Mr. H. Somers Rivers, at 3 o'clock. At a general meeting of the society, held on Tuesday, January 5, fifty-three new Fellows were elected.

Obituary: Mr. Thomas Wray.

Mr. Thomas Wray, late secretary to the Malton (Yorks) Gala Committee died on December 18. This society has been established forty-three years, Mr. Wray being secretary from the commencement, but during the last few years he had the help of an assistant secretary. Mr. Wray resided at Old Malton, and was for thirty-six years schoolmaster of the parish. He carried out his duties as secretary in a highly satisfactory manner, and was held in great esteem, both by committee and exhibitors. He was buried in Old Malton Churchyard on Monday, December 21, this date being his birthday, and had he lived he would have been seventy-six years of age.

Ware Horticulturists and the New Hall.

At the recent annual meeting of the Ware (Herts) Horticultural Society, the question of financially supporting the Royal Horticultural Society's new hall, now being built in London, was discussed, and a resolution was passed, in which the members pledged themselves to do all they could to help. The president, Mr. E. S. Hanbury, started the subscription list by giving £1, and all the committee have since contributed towards the fund. Mr. G. Gumbrell has kindly volunteered to collect subscriptions. It is hoped that as many as possible will contribute towards so worthy an object. Any sum, however small, sent to Mr. Gumbrell, Widbury Lodge, Ware, will be gratefully received and duly acknowledged.—A. P.

Departmental Committee on Fruit Growing and the N.F.G.F.

Every member of the National Fruit Growers' Federation must heartily welcome the decision of the Board of Agriculture to hold a Departmental Inquiry into the condition and prospects of the fruit growing industry in this country. Of course, it is a matter which affects every grower, but members of the Federation will be justified in feeling with some pride that they have had a hand in bringing it about, for without wishing to claim more credit than fairly belongs to it, there can be no doubt that it was the agitation set on foot by this national society which brought to the minds of the powers that be the necessity for an exhaustive inquiry. It is a well-known fact that Government Departments rarely take action of this kind without spontaneous evidence from the particular interest concerned that such action is really required, and in this instance the National Federation has undoubtedly furnished such evidence. By its deputation to the Board of Railway General Managers which led to some very satisfactory results, and the public meetings it has held in various parts of the country, it has called attention to the needs of the industry, and especially by its frequent communications with the Board of Agriculture, have these needs been impressed on the late and present heads of that department. At the great gathering at Maidstone in August last, the President of the Board was present in person, delivered a most sympathetic address, and himself joined the Federation. Then we have the fact that the President and two other leading members of the Federation are appointed as members of the Committee of Inquiry, which alone should convince the growers in general as to what influence is possessed by their representative combination. Indeed, it is difficult to see how any grower can conscientiously withhold his support from a body which is so manifestly working for his best interests. I shall be glad to answer any inquiries and to receive any suggestions with regard to the work of the forthcoming Inquiry Committee, which will be forwarded to the proper quarter.—A. T. MATTHEWS, Secretary, N.F.G.F.

Retirement of Mr. John Burn.

The announcement that Mr. J. Burn is resigning his appointment under the Corporation of Leicester as curator of the Abbey Park, and superintendent of the other public parks and open spaces in the borough, is just made. It is twenty-two years since Mr. Burn took service under the Corporation, and during that time he has laid out some five hundred acres of parks and open spaces, besides planting miles of streets in the borough. Few towns have been so beautified in this way as Leicester, and the great industrial population show their appreciation of the parks by thronging them at all times when the weather is favourable. The Abbey Park, in which Mr. Burn has his residence, has been particularly his pride, and it is always a source of attraction to townspeople even in winter. In all probability Mr. Burn's future home will be in the North. By his retirement the Corporation of Leicester loses an efficient public servant, and the Abbey Park flower show an able superintendent. This was the creation of Mr. Burn, and it was always a source of great pleasure to him that it afforded him an opportunity of gathering about him many friends as exhibitors and judges. The generous hospitality dispensed by Mrs. Burn on such occasions, and her invariable kindness and attention to her many horticultural visitors will long be borne in kindly remembrance.

Bournemouth Gardeners' Mutual Improvement Association.

The annual dinner of the members of the above association was held at the Quadrant Restaurant on January 5, when the president of the association, T. J. Hankinson, Esq., J.P., occupied the chair. The company included the Mayor of Bournemouth, who is a vice-president of the association; also Alderman Davis, Councillors Rolls and Hutchings; Messrs. J. Berry, H. Harris, C. Stewart, J. Swaffield, and W. Watts; vice-president, and about seventy members. Mr. H. G. Cox, from Reading, and Mr. J. Stevenson, from Wimborne, were also present. An excellent dinner was provided, and the tables were gaily decorated with flowers by the Messrs. Watts. The loyal toasts having been honoured, the treasurer, Mr. F. W. George, on behalf of the members, asked Mr. J. B. Stevenson to accept, in recognition of the valuable services he has rendered to the association for sixteen years as hon. secretary, a gold watch, with the hope that he would continue the secretaryship for many years to come. The president, Mayor, and other speakers having congratulated the recipient, Mr. Stevenson suitably replied, and the rest of the evening was pleasantly spent in toast and song.

Edinburgh Market Gardeners.

The annual meeting of the Edinburgh Market Gardeners' Association was held recently. The chairman, in reviewing the progress of the past year, said that everything had gone on in a nice, smooth way, without a single jarring note. The whole revenue of the market for the year had been £4,033, an increase of £378 over the previous year. The market gardeners' contribution to the income had decreased by £16 13s., principally on account of so many of the wholesale men leaving the market for a time. These had now returned, however, and there was every prospect that the ensuing year would be as successful as former years. Councillor Waterston, on behalf of the Markets Committee, said he was glad to hear that there were no complaints to make. The Markets Committee had always found the gardeners' executive willing to meet them in the most amicable spirit. Mr. Isaac Connell, S.S.C., secretary of the Scottish Chamber of Agriculture, submitted a statement with regard to railway rates as they affected market gardeners, and intimated that the Scottish Chamber of Agriculture had resolved to co-operate with the market gardeners in securing more favourable terms in this matter. He pointed out the benefits to be obtained by association with the Chamber in the protection of mutual interests. It was unanimously agreed to become affiliated to the Scottish Chamber of Agriculture. On the motion of Mr. James Sinclair, East Linton, seconded by Mr. James Mathieson, Dean, Edinburgh, it was agreed to appoint a correspondent to the Board of Agriculture. Mr. Scarlett, treasurer, presented the financial report, which showed an income on the year's working of £62 7s. 3d., and an expenditure of £16 6s. 4d., leaving a credit balance of £46 0s. 11d. The meeting unanimously agreed to

give a sum of £20 to the Royal Caledonian Horticultural Society to be used as prizes in their forthcoming international show. Mr. Peter Gemmell was unanimously re-elected secretary.

Fortunes in Flowers.

Mr. Harry Green, the manager of Robert Green, Limited, the well-known society florists, states that £1,000 is quite an ordinary price for West End society people to lay out upon the embellishment of their rooms on the night of a ball.

Croydon Gardeners.

The annual meeting of the Croydon and District Horticultural Mutual Improvement Society was held on January 6. The Society is in an excellent financial condition, being able to carry forward a good substantial balance for the coming year. Nineteen meetings have been held, at which lectures and papers relating to horticulture were given, and in each instance have been of the usual high standard. Two evenings were devoted to "Discussions," which proved very instructive. The exhibits displayed at the meetings were much appreciated. The Society is grateful to Mr. J. H. Baldock for kind assistance with the lantern illustrations. The essay competition, the first prize of which was gratefully accepted from Mr. J. J. Reid, was won by Mr. A. Middleton, and Mr. T. W. Briscoe secured second prize, kindly contributed by Mr. P. F. Bunyard. The collecting-box of the Gardeners' Orphan Fund when opened was found to contain £2 0s. 6d., and the committee have duly forwarded this amount, with the Society's best wishes, to the secretary of that institution, Mr. B. Wynne. The resignation of Mr. F. Lloyd as president, owing to his many duties preventing him from devoting his time to the Society, is deeply regretted, but we are glad to say he remains a vice-president. From the Board of Agriculture and Fisheries we are receiving valuable help by way of leaflets illustrating different insect pests and diseases pertaining to plant life, with proved remedies to combat them, and these are distributed to members at the meetings. The annual dinner will be held on February 10.

Booming Potatoes.

With regard to the principle of getting hold of a new variety of Potato, and "ascribing to it exceptional properties, in the hope of doing a little 'flat-catching' whilst the fever runs high," we may state some facts, whose accuracy may be vouched for. In the autumn of last year a Scottish agriculturist, who has a great reputation as a grower of seed Potatoes, was visited by two extensive Potato growers from the South of England. The Saxon visitors were shown all round the farm and the Potato fields, where they saw great crops of several different varieties. They were also shown a number of smaller plots of new varieties, some of which had been raised on the place, and had not then been put on the market. The visitors were particularly struck with the cropping quality and fine shape of one of these new varieties, and they made a tempting bid to buy the stock outright, but that offer was refused. The visitors then unfolded their plans. They said there was undoubtedly a fortune in the new variety if it was properly handled and boomed, and to that end they proposed that the grower, who had a name that could be conjured with in Potato-growing circles, should form a syndicate along with them for booming that variety, the profits of the business to be equally divided. According to the *modus operandi* which the visitors proposed, they would send the raiser "dummy" cheques for fabulous sums in nominal payment of small parcels of seed, and these "dummy" cheques would be shown round the market as a guarantee of good faith. Then the Press was to be utilised to the full in the way of feeding the readers of the agricultural and other papers with fairy tales as to the "exceptional properties" of this new variety, and the wonderful prices which were being paid by means of these "dummy" cheques for small parcels of these "Apples of the earth," which were more valuable than even the golden Apples of the Hesperides. The profits of the business would be great, and well worth the sacrifice of honour and principle involved. But the scheme did not come off, as the raiser of the new variety promptly told his visitors that he was not disposed to enter the "flat-catching" business. These were not the precise words used by the grower, but they were to the same effect, only they were much more emphatic.—("North British Agriculturist.")

The Seed Order.

The daily post brings frequent reminders of the circle of time which has been spent, and the pressing duty of once more compiling the seed order for the current year's use. That duty makes a varied impress on the mind of those responsible—to some there is a feeling of almost painful anxiety, to others such sentiment would probably appear strange.

A general survey of the catalogues would seem to suggest that in the matter of novelty there is no laxity permitted on the part of hybridists and specialists, but rather progress seems written plainly on the signal of time. Few can remember a time when so much has been said, so much written, and so much money speculated on

POTATOES

as during the past year, nor perhaps were there ever so many high-class novelties wrestling one against the other for fame. Northern Star seems to have been the pioneer for this craze in Potato speculations, and though a few adverse opinions are now and again heard, generally the verdict is a favourable one, both as affecting its cropping and disease-resisting capacities. The last two seasons have produced such poor returns for the Potato grower that these new discoveries justify their name and fame if, as is generally admitted, they, as seedlings, are disease-proof, give prodigious crops of good table quality. It is just the fact of the proverbially light crops of the last two years which stimulates the purchase of the newcomers at fancy prices. The passion thus aroused seems to have resolved itself into fashion, for after all the purchases of these novelties are in thousands of cases reduced to the smallest possible limit of weight, and so many buy to keep pace with, or to outdo, one's neighbour. The fabulous prices paid for the latest newcomer, Eldorado, is almost staggering, and presumably it must remain in the hands of the few for some time yet. Sutton's Discovery has evidently made a wonderful impression, as instanced by demand even before catalogues were issued. Sir John Llewelyn, Evergood, Edward VII., The Factor, and Toogood's Tremendous are a few which are finding willing purchasers.

PEAS.

These, which are generally so foremost, seem overshadowed by the boom of Potatoes, and do not seem able to support their self-imposed importance for the moment. It will be otherwise when the vigil of June appears. Peas will be equal with Potatoes then, boomed or otherwise. As the best of the season's productions are generally illustrated and given in prominent type by all good seedsmen, it is scarcely a necessity to "gather them up" at present. They are so easy to distinguish.

LEEKS.

When one stood and surveyed the wonderful array of vegetables at the late Chiswick Show, the thought must have struck many how excellent were the Leeks, how massive and well blanched were they. Dobbies, of Rothesay, seem to lead the van in the matter of Leek strains, their Champion and International finding many adherents. The Lyon and Ayton Castle are older favourites, and Holborn Model of more recent time.

SEAKALE.

which had so long and undisturbed a history, seems to have found a loophole through which to enter the arena of novelty. Lily White, it is true, has been with us for some time, but that no longer holds first place, since Beddard's Improved and Dobbies' Solid Ivory are brought out as likely rivals. Seakale is so important a winter vegetable that the wonder is not that a stir is now being made, but that it should so long have remained unnoticed by the hybridist. What is badly needed is a variety that can be more readily forced in early winter.

VEGETABLE MARROWS

are slow to swell their numbers compared to Cucumbers; King's Acre Cream, Dobbie's Prolific and Toogood's Perfection are a trio of up-to-date Marrows that those not satisfied with the old order may substitute. Though important as a winter vegetable,

PARSNIPS

do not receive such devotion as do some other vegetables, nor do their names, like Marrows, increase as do those of Peas. Sutton's Intermediate is a new type, and for heavy ground where the Parsnip gives so much trouble at digging time it should be valuable for the shortness of its root. Tender and True, Holborn Marrow, Toogood's Globe, and Jersey Marrow may be named as an advance on the old strains of Hollow Crown, once so familiar.

CUCUMBERS.

One can scarcely find the goal to pitch for the best exhibition Cucumber, as there is so much desire for new names and fresh stocks. Every Day is an undoubtedly good one, even if not rightly named; Peerless, Model, Excelsior, and Lord Roberts are some that have established records, and one might go on indefinitely finding others. For the every day of winter, Cardiff Castle, Sion House, or Telegraph may still be reckoned as desirable.—W. S. (To be continued.)



Happy-Go-Lucky Fruit Culture.

The pithy note of "Patriot," on page 9, affords yet another instance of carelessness, as well as ignorance, in regard to fruit growing; and although, fortunately, many can point to the improvement which is gradually (too gradually) taking place in regard to such matters, there still remains a gigantic task to accomplish before it will be the rule, rather than the exception, to meet with orchards and fruit plantations managed as they should be. I think it is more often due to sheer carelessness than to want of knowledge that such slipshod methods are pursued, for the facilities for obtaining information on such matters are now so good that no one has any excuse for pleading ignorance. One would think that before any sane man sunk money in fruit growing every effort would be made to obtain the best possible advice in regard to varieties, methods of soil preparation, and planting. But it is not so. The too common idea is to buy trees as cheaply as possible, stick them into the ground by any method that does not draw largely upon the purse, and then find comfort in the hope that, as it is a "fruit growing district," the trees will be sure to "do" all right.

During the last four years I have watched with disgust an attempt at Plum growing, in a district where they as a rule succeed splendidly. The trees I refer to were planted four years ago. Corn had been grown on the land during the previous summer, and after it was cut, grass grew between the stubble. In the autumn from ten to fifteen acres were planted with young trees of no particular shape, for they were neither standards nor bushes, but in all respects "naturally" grown weaklings. Without any further soil preparation very small shallow holes were dug and the roots of the trees pushed into them and covered with soil, which was firmly trodden. Since that time nothing further appears to have been done; they are still perfectly naturally grown trees, but, oh! so small and weakly, very little bigger than when they were planted. And this is the way in which money is wasted on fruit growing in enlightened England.

The only satisfactory way of putting matters right in the above case would be to take up the whole of the trees, make large holes, enrich the soil with a moderate amount of well decayed dung, then replant the best of the trees, and replace the remainder with good specimens. Then, if the soil were cultivated round the trees for a few years, there would be some prospect of success. But, look at the waste of money; four years lost, and the expense of planting twice.—BRITON.

Brussels Sprout, Sutton's Exhibition.

To gardeners who have not yet tried the above variety, let me bring it to their notice. From plants raised under glass last January we have been picking pecks of fine sprouts every day since September last, and are still picking. Of a robust constitution without being coarse, the plants are about 3ft high, the stems being thickly covered with large solid sprouts, which remain firm for a long time, while the flavour is all that can be desired. Gardeners who have large establishments to supply with vegetables will find the above one of the most reliable and profitable Brussels Sprouts extant—at least, that is the experience of—WILMOT H. YATES, Rotherfield Park, Alton, Hants.

Chrysanthemum Critique Controversy.

I crave small space in the "Journal" to reply briefly to Messrs. Jefferies and Wells' notes on p. 578, Vol. 47. I will not occupy much space, as but little fresh argument is introduced, and I think but little of the value of the third person's opinion. Mr. Jefferies says Guy Hamilton was shown at Birmingham 8in in diameter and as much as 9in deep. So one of the judges informed him! And this "disposes of 'Sadoc's' assertion" that this variety was classed amongst the non-successful sorts of last year!! Now, what are the facts about the Birmingham Show? Why, Guy Hamilton is simply named twice throughout the exhibition, and each time without comment. I also note that if this variety competed in the class for any white flowered variety it was not even placed! I wonder if the authority quoted really did measure the bloom, or only mentally noted it? After all, one swallow does not make a summer. Regarding Exmouth

Rival, the Chrysanthemum Analysis compiled by Mr. Molyneux, which I have read to-day with much interest, shows what the forty electors think of this variety. I note it is not even mentioned. Surely, then, I was not so far wrong after all?

Mr. Jefferies quotes Mr. Kenyon as having a fine lot of Madame Herrewege. I note he was second in the great vase class at the Crystal Palace, and also second to Mr. Mease for 48 Japanese; yet, strange to say, your reporter altogether failed to note these "magnificent results," and I have always thought him a bit smart in reporting. Seldom does he miss "magnificent objects" (!) I, too, Mr. Jefferies, judged this variety by results which were not "magnificent." I am pleased to see Mr. Jefferies does admit that Mons. L. Remy has not been shown much this year. It is of the present-day actions I take exception to, for many things happened last year that never will again.

Oh! Mr. Jefferies! Lily Mountford really is "washy," then? Is a fortnight a long time for a bloom to last in good condition? Fancy cultivators spending eleven months for a fortnight's display! I congratulate you, Mr. Jefferies, upon producing J. R. Upton at the N.C.S. show so fine. Without wishing to depreciate the quality of those shown in the first prize vase class, I note the "Journal" report says, "The latter two were good," alluding to Geo. Penford and Madame P. Radaelli; further comment is needless. I agree with Mr. Jefferies that Lady Cranston is a lovely flower.

Mr. Wells advances nothing of a tangible nature to enable me to reply to him in sound argument. I always come to the conclusion that a man who cannot advance matter of a tangible character may have got a bit mixed in his notes, and when he reads correctly the "proof" he may find that others are wrong, and not—SADOC.

[This letter, unfortunately, has been held over.—ED.]

Hydrocyanic Acid Gas for Tomatoes.

Would you kindly inform me through the medium of the *Journal* if an application of slaked lime would be of benefit to the ground inside market Tomato houses? [See Answers to Correspondents.—ED.] The coming season will be our second, and the ground was old pasture last spring. A heavy mulching of decayed manure was given after the first truss of Tomatoes was set, during the summer. If you think it would not do harm to the crop this summer will you inform me what quantity to apply? I may add that we had a crop of eleven tons out of five houses. Each house is 150ft long by 15ft wide, and there are eight rows of plants in each house, four rows on each side of the central path. Can you inform me if this is a record, or if they grow heavier crops in the south of England? I may say also that I think we are the first in Scotland to use the "Hydrocyanic Acid Gas" as a fumigator. We were suffering from an attack of white fly, and the result of using the gas was disastrous to the flies, as they were killed in thousands, and the ground was white in some places with the dead. The low cost of fumigating is an advantage, as it amounts to about two shillings per house of 150ft by 15ft. It is very dangerous to use, and this may keep it from coming into general use among gardeners and owners of glass houses.—R. L., Ayrshire, N.B.

Trade v. Private Exhibitors.

This vexed question appears likely to go on indefinitely without finding unanimity of feeling on the part of exhibitors. For those who are objectors there is some consolation in the knowledge that few of the trade growers compete against private growers. That the latter can, and do, hold their own in cases where no expense is spared to provide the equipment necessary, may be taken for granted. Mr. Vallis has had a remarkably successful career, yet even this envied grower has suffered defeat, and will no doubt again if he continues as an exhibitor. The unfairness comes in in such case where the small grower has to compete with his trade rival in open competition. The ambition of the small grower may be as keen as his opponent's, but his duties and equipment would not compare, nor would he have the advantage of novelty, which counts for so much in Chrysanthemum exhibits. Where injustice steps in is in those cases where no provision is made for the small grower independent of the Trade. The private growers who can produce from 500 to 1,000 plants for specimen blooms do not complain of having to meet trade exhibitors.

"Fairness" may assure himself that there is no absolute necessity for tradesmen to compete, and so long as the finances of many autumn exhibitions remain in their present state there is no hope of getting competitive classes set apart for trade growers to compete, as he suggests, one against the other. Without making a careful perusal of the many reports of November shows, it could not be estimated to what extent the tradesmen are successful in competitions; but my own

observation and feeling is that the trade competitor is in a very minor position. I well remember more than twenty-five years since a case where a nurseryman employed an expert almost expressly for Chrysanthemum exhibitions. One of his strongest opponents was a quarryman possessing but one small greenhouse, yet on show day one was as good as the other, and shared prizes without preponderance in the trade grower's successes. The same quarryman competed for many years with success against numbers of gardeners having far greater accommodation.—W.

Ordering Fruit Trees.

Every garden in which fruit trees are grown will need, if not an annual addition, at any rate, a purchase of a few to replace old, worn-out, or worthless trees, and with so many sterling novelties in the market there is a desire in some instances to invest, with the view of being just a little up-to-date. A curious and an undesirable experience in my case marked the planting time, in that no less than three large nurserymen's catalogues were consulted and selections made, yet from neither could be had the varieties I had ordered, or which were enumerated. In one instance out of eighteen sorts selected from a catalogue, only one could be supplied. Instead of agreeing to substituted trees I preferred to try elsewhere for the varieties I wanted.

Accordingly a selection was made from another list, modified to suit the catalogue in hand. Strange as it seems I got but very little more success, and the same course was repeated and carried, even to the fourth nursery, before I could get my small order complete, and then even I had to abandon several hoped-for varieties, though they had places in the several catalogues. If this is a common experience with other planters it is high time nurserymen, instead of making up catalogues of names representing imaginary stock, they would save themselves and their clients much trouble and annoyance by carefully revising catalogues and excluding those names which do not represent trees available or in stock.—PLANTER.

The Weather of 1879 and 1903.

I have seen a good many comparisons of the weather of the past year with that of 1879, and statements made that for rain, cold, and general disaster 1903 was the worst year of the two. As I very well remember the terrible year of '79, and have made daily notes of wind and weather since 1867, though I have never kept a rain-gauge, it may interest the readers of the *Journal* to learn why I consider '79 to have been the worst year of the two.

My notes, as I did not and do not measure the rain, have, of course, no scientific value; they only convey the general impression on one who has been interested in weather matters all his life, and generally would only refer to rain in the daytime. Premising that I live in the driest part of England, where the average rainfall is, I believe, well under 20in, I find I recorded rain or snow on 148 days in 1879, and on 104 only in 1903.

In 1879 there were only 16 days on which snow or rain fell during the last three months of the year, and then only in small quantities—it is this fact, no doubt, that has enabled 1903 to beat it in actual rainfall. It was the entire absence of summer heat that made 1879 such a disastrous year, when corn and the other fruits of the earth never had a chance. I find in my notes only three fine days in June, July, and August, and two of these were the 29th and 30th of August. Well I remember going to church on Easter Day, April 13, in 6in of snow, and seeing men mowing Barley in September in pouring rain, and carting it as it was cut, for it never was and never could have been worth anything owing to the absence of sun. I have a note against July 28 of "No hay cut yet."

Now in 1903 we had, considering the rainfall, a good amount of sun—there was sun almost every day when it was not raining—and especially we had magnificent weather, without a drop of rain, from June 20 to July 12, the critical time for the corn, which accounts for the fact that such corn as was got in here in good time was of very good quality. No such thing was known in 1879; the grain never had a chance of being properly formed. I find only two days in 1879 marked as "Fine, hot" (not being 70deg or over in shade), and no less than twenty-three in 1903. I began Rose showing in 1879, and cannot say how many times the season (*i.e.*, last week in June and two first in July) has passed over without any rain to cause protection to be needed for the blooms, but I am quite sure 1903 was the first for a good many years. In short, though there may have been more rainfall in 1903 (most sorely needed, for our springs are at last restored to the level of ten years ago) I am sure that 1879 was very much colder and more uncongenial to vegetation and life of all sorts.—W. R. RAILLEM.



Two Decorative Varieties.

The two we figure are fine decorative Chrysanthemums—Carrie is one of Wells' new early-flowering introductions, of a rich, bright yellow; while pompon Prince Victor is one of the best in its section, and is coloured dark maroon.

The Chrysanthemum Analysis.

Growers of the "Mum" throughout the length and breadth of the land are certainly under a debt of gratitude to Mr. Molyneux and to the Editor of the Journal for the excellent analysis given in the copy closing the year 1903. No doubt many will treasure that issue and keep it as a useful reference for future use. England, Wales, and Scotland are all represented in the analysis, but why, Mr. Molyneux, have you omitted "dear old Ireland"? There are some excellent exponents of the cult in the Emerald Isle, and another year I would respectfully suggest they should be represented.

Referring to the analysis, there are one or two varieties we expected to have seen in different position. From what we have seen of Miss Elsie Fulton in Scotland this year we had expected to have seen it higher in the list. Mrs. Greenfield, too, has been fine in the North. On the other hand, the Carnot family have fallen out of the running almost altogether among Scotch growers, and the same may be said of Edwin Molyneux.

The Morel family and Mutual Friend, once so popular, have also now to take a back seat, not coming up to exhibition size. Amongst whites, Madame Cadbury, Miss Nellie Pockett, and Miss Alice Byron are still in high esteem.

Decorative varieties are now much in demand, and no doubt there will be many anxiously awaiting a reply to Mr. W. D. Whittaker's request. Popular sorts in this locality are La Triomphante and its sport, Mrs. Kirk; Miss Watson, Ryecroft Glory, William Holmes, John Shrimpton, Niveus, Pride of Ryecroft, W. H. Lincoln, Madame Philippe Rivoire, and L. Canning. Single varieties, too, are becoming more and more popular, and rightly so, as they are so graceful and lend themselves to every form of decoration. The two sorts we find most useful are Mary Anderson and Annie Holden; Purity has not come up to our expectations, and will be discarded.—ALBYN, Bridge of Earn.

In reading the above, one or two points rather struck me. First of all, the very great help it must be to growers living in somewhat out of the way districts, whose experience of shows is perhaps limited to one or two at the most. It also gives an opportunity of seeing how far one's own judgment is in accordance with that of men of vast experience and discernment.

I think where varieties are synonymous the votes might be bracketed, as in the case of Miss E. Fulton and Princess Alice of Monaco. Miss Mildred Ware tops the list of new varieties with twenty-seven votes, yet only polls seventeen votes for the best fifty, one less than Mrs. F. W. Vallis, which receives twenty-four votes as a novelty. Hy. Perkins receives twenty-two votes as a new variety, but seemingly six of the voters do not think it good enough to be included in the larger list. Miss Olive Miller received an exactly proportionate number of votes, viz., sixteen and ten.

F. S. Vallis received thirty-seven and nineteen votes, and occupies fourth place in each, being beaten as a novelty by Miss M. Ware, Mrs. F. W. Vallis, and Hy. Perkins, whose positions are forty-nine, forty-eight, and fifty-one in the larger voting. Geo. Penford only received nine votes for the best fifty, and nineteen as a new variety. Several others also received more votes in the lesser poll. To my mind these anomalies all go to prove the value of the audit, especially to the less experienced, as it shows the difficulty the aspirant for a place amongst the elect half-hundred encounters in attaining that honour and then maintaining its place afterwards. Long may Mr. Molyneux wield his pen for the benefit of our Autumn Queen and her subjects generally.—A. H.

After reading the notes from Mr. Godfrey (page 32), the inconclusiveness of the late Analysis seemed to me to point to the necessity of providing one from private growers and another from the Trade. It might be said that novelties of several of the largest vendors would probably receive favour from the hands of the Trade individually. I venture to think that such

a feeling would be put aside and discouraged in the face of the importance of the question at stake. That private growers are qualified to judge of the merits of ordinary stock, and as far as they are proved the new ones, is well admitted; but it is absolutely certain that the favoured ones who can indulge in large investments sufficient, at any rate, to compete with trade growers are few—very few.

In catalogues all newcomers are given their very best credentials, and those who have to choose from catalogue descriptions alone have to depend on chance a good deal. An election from the tradesmen could be conducted exactly on the same lines as those now annually compiled. That the annual election will ever become perfect, judged by everybody's standard, seems well-nigh impossible, yet the interest all the same is well maintained; indeed, the returns are anxiously awaited. Since the decorative and market Chrysanthemum is becoming yearly a greater necessity, the same or a similarly arranged election would meet with almost as much favour. Mr. Godfrey's dissection of the election tables, and especially of the new varieties, would seem almost to qualify the terms he uses in the comparisons made.

Is it not desperately disappointing when, after a trade favourite has been so loudly boomed, to find it afterwards described as insipid, too soft, and the colour one that quickly fades? This, too, after fancy prices have been paid, and a season's hopes and prospects expended. Most readers will admit the authority of Mr. Godfrey in all matters pertaining to Chrysanthemums, and his opinions and arguments are always weighty and demand respect. Yet readily granting all this, he will probably yet find dissentient voices in the "Journal's jurors" in their summing up and verdict.—AN INTERESTED ONLOOKER.

It would be very interesting and instructive to most *Journal* readers if, to the names of each voter, was attached the number of varieties he wrongly estimated. In the best fifty Japanese your correspondent "A. H." states he was wrong in eight, personally I was wrong in ten. The ten I included and which were unplaced are as follows:—W. Duckham, Miss Olive Miller, George Penford, Henry Perkins, Lady Mary Conyers, Countess of Arran, Exmouth Rival, Exmouth Crimmon, Ben Wells, Mrs. J. J. Thorneycroft. The varieties I thought unfit to be placed in the best fifty Japanese are as follows:—Madam R. Cadbury, Mrs. H. Weeks, Florence Molyneux, Le Grand Dragon, Henry Stowe, Mrs. E. Thirkell, Matthew Smith, Sir H. Kitchener, Australie, and Madame Waldeck Rousseau. The three first-named of these are grand whites when well grown, but I think another year will prove more conclusively that the ten varieties I omitted to place, or rather thought unfit to be placed in the best fifty Japanese, will not find many supporters. It would be most interesting to growers if the editor could prevail on each of the other voters to give a list of the varieties they voted for or against.—A. JEFFERIES, Moor Hall Gardens, Essex.

New Year Varieties.

My choice of late "Mums" would not, I am afraid, support Mr. Molyneux's, for he has unfortunately left out of his list several old favourites which must be well known to him, and which have not up to the present been superseded for floriferousness colour or constitution, and I find it is unwise to discard these until we have well proved the merits of some of the newer introductions.

Here, where large quantities of cut stuff is required for house decoration, we try some of the better class Japanese kinds each year, for the purpose of finding out any improvements, but unless they are really an advance, taking their lasting qualities when cut into consideration, we discard them. Last year I had François Pilon good and fresh the first week in March, and is the best late Chrysanthemum of its colour. Equally late also is a seedling white of my own; there is no other white that I am acquainted with which will keep so long—every bud opens a perfect flower, it travels well, and is an ideal florist's flower. Mrs. H. Weeks deserves to be grown much more than it is, although perhaps not of quite so branching a habit as some, the quality of the flowers makes up for this.

Of a very pleasing shade of colour, which attracts everyone's attention, is Harold Wells, a light sulphur yellow, with flowers very freely produced on extra stiff flower-stalks, and if well disbudded very good flowers are obtained. This variety travels well, and lasts a long time when cut. It was sent out by Mr. Wells, of Earlswood, and was a sport from a white variety.

As a good late chestnut crimson "Jap," Glorious is hard to beat. It will last six weeks after the flowers have expanded. Other useful and reliable varieties can be noted by referring to the report of my exhibit at the R.H.S. meeting on January 5, and as they are all old standard kinds, detailed description of each is only waste of time.—W. H. CLARKE, The Gardens, Aston Rowant House, Oxon.



Early-flowering Chrysanthemum "Carrie" and Pompon "Prince Victor."

Chrysanthemums: October to January.

If W. D. Whittaker, page 12, wishes to know the best varieties for exhibition, he cannot do better than select those with the highest number of votes in the last audit. On the other hand, if he wishes to grow from six to nine specimen blooms on a plant of robust habit, for commercial purposes, he will find the following list a good one. I need hardly say that to obtain the best results the plants must be well grown from an early start. But I have traced the failure of a great number of early struck plants to a want of fresh air in bad weather.

VARIETIES FOR OCTOBER FLOWERING.—Soleil d'Octobre, yellow; Bronze Soleil d'Octobre; Madame Gustave Henry, white; Lily Mountford, rose and white; Lady Ridgway, salmon buff; Henry Weeks, crimson; and Mrs. Coombes, pink.

FOR NOVEMBER.—Mrs. G. Mileham, rosy mauve; F. S. Vallis, canary yellow; Miss Elsie Fulton, white; Mrs. Greenfield, yellow; W. Duckham, lovely shade of mauve; Godfrey's King, crimson; Mrs. J. C. Neville, white; Bessie Godfrey, light yellow; and Pride of Madford, crimson cerise.

FOR DECEMBER AND JANUARY.—Mrs. Barkley, light rosy mauve; Gen. Hutton, bronzy yellow, rather tall; Madame Ad. Chatin, creamy white; Madame Cadbury, whitest of all; Marquise Venosta, reddish purple; Miss A. Byron, white; Matthew Hodgson and Colonel T. C. Bourne, both crimson, of which the first-named is the latest; and J. R. Upton, deep yellow.

I presume it is hardly necessary to mention such well-known cut flower sorts as Phœbus, Niveus, Lord Brooke, Western King, Framfield Pink, &c., which are still indispensable for that purpose. Mrs. Weeks, white; Mrs. Bryant, rose pink; and Ethel Fitzroy, deep amber, give late specimen blooms of the largest size and splendid colour, but are rather tall. Australie is another tall one that, if cut back in May, will give good specimen blooms, rich in colour, at Christmas.—R. BARNES.

Seed Catalogues, Spring, 1904.

The nurserymen's seed catalogues are now in the hands of gardeners. A few of these we hereunder briefly review, taking the names alphabetically.

BARR AND SONS, King Street, Covent Garden, London, produce a neat catalogue in white covers. Illustrations are present, but they are small and not numerous. The publication is arranged alphabetically to facilitate ready reference. On page 22 is given some useful, practical hints on the raising of flower seeds. A fine list of novelties and specialities for 1904 will be found on pages 23-33, while in the body of catalogue only the best and most useful of kitchen and flower garden seeds are described. A list of the best gardening books is given on pages 114-116.

"**BAKER'S**," nurserymen, seedsmen, and bulb-importers, Wolverhampton, is a new name in the horticultural trade, and business has been entered on in an enterprising manner. A view of the glass houses is furnished in the catalogue, together with one of a drive, and another of Chrysanthemums. Collections of seeds are offered at various prices.

BULL AND SONS, of Chelsea, have a number of novelties to offer, and perhaps the most interesting is their Ten-week Stock, White Excelsior. For florists' decorative purposes it would seem to promise well.

CARTER AND CO., of High Holborn, London, have undoubtedly a magnificently illustrated catalogue, containing, along with the beautiful half-tone blocks, twelve coloured plates. For two or three years Messrs. Carter and Co. have employed colour printing in their catalogue, and they spare no expense or labour to make it the best possible in this respect. One of the staff makes photographic technique his business, and we have seen him in his studio at Forest Hill surrounded by dozens of photographs in all sizes and stages of preparation, both for the farm and the garden seed catalogues. Thick art paper is used in the publication before us. Culinary Peas are a great speciality with Messrs. Carter, and Sweet Peas also figure prominently. Gloxinias, Cinerarias, and Primulas, amongst other floral subjects, are given the prominence they deserve. The making of lawns from seeds may also be noted as a feature of considerable interest here.

CLIBRANS, of 10 and 12, Market Street, Manchester, are strong in herbaceous Calceolarias (of which they give a coloured plate), these being one of the subjects in which the firm specially pride themselves. Pansies, Mimuli, and Begonias are prominent, and any novelty or specialty throughout the pages is marked by an index-hand. The very complete illustrated selection of insect destroyers, appliances, and garden sundries, make the concluding pages valuable for reference.

WM. CUTBUSH AND SON, Highgate, London, are enormously strong in novelties, floral and vegetable. It must suffice to say that they are all grouped in one section on pink paper, and that no less than forty-four of these novelties are here figured.

DICKSON AND ROBINSON, Manchester, staged sixty-seven varieties of Lettuces at a meeting of the Royal Horticultural Society on September 15, last year. The display had been photographed, and this has in turn been reproduced in the catalogue.

DOBBIE AND CO., Rothesay, are strong in florists' flowers, particularly those cultivated for show in the North. Their selections of Zinnias, double African and French Marigolds, Antirrhinums, Tropæolums, Sweet Peas, Marguerite Carnations, Fuchsias, and Dahlias are very choice, and represent the finest types. Potatoes, too, are catalogued fittingly for this leading Scottish house.

DICKSONS, of Chester, make a special feature of Gladioli, the various hybrid sections, extending in detail over three full pages. Potatoes, in the vegetable portion, are amply enumerated.

JOHN FORBES, Hawick, Scotland, brings forward his strain of East Lothian Stocks in the following colours: Crimson-scarlet, purple, white, and rose, with white Wallflower leaved, and crimson Wallflower-leaved. Asters, dwarf annual, appear also to be particularised.

In **JOHN K. KING AND SONS'** catalogue (Coggleshall, Essex), a richly coloured plate of Sweet Peas is included, as well as illustrations of four new culinary Peas in colour. Select lists of varieties of Sweet Peas, placed under colour, are given. Asters are a feature, and Potatoes occupy four pages.

WILLIAM PAUL AND SON, Waltham Cross, Herts, sensibly place all novelties by themselves (as do some of the other nurserymen), so that those on the look-out for new varieties have no trouble in finding them. The "Waltham" collections of flower seeds will suit the means of villa and smaller amateur gardeners.

STUART AND MEIN, of Kelso, announce the dates of their popular vegetable competitions. The champion Cabbage competition (for customers only), for which seven guineas in cash prizes are given, will take place on May 26th, 1905; the Lyon Leek competition, with £5 cash prizes, has been settled for November 11th, this year, when the results will be published in three amateur gardening papers. The seed catalogue before us gives full particulars of these competitions.

SUTTON AND SONS, of Reading, issue a sumptuous publication, in which Peas and Beans occupy the earlier pages, and Potatoes (with a coloured illustration of the new late variety, Sutton's Discovery) follow in due order. The Potato section extends to ten pages (or eleven with the plate), and is made exceptionally interesting by the very finely produced illustrations, which are large. It is hardly necessary to praise the beauty of the many illustrations in this catalogue, they are well known; nor is it necessary to say more than that Primulas, Cyclamens, Cinerarias, Sweet Peas, Calceolarias, and other very popular subjects are conspicuous features.

TOOGOOD AND SONS, Southampton, present a catalogue of general interest, although no one feature stands out above its neighbours.

JAMES VEITCH AND SONS, LTD., of Chelsea, send out their handsome seed catalogue in real wood covers—being the thinnest shaving from stems of (doubtless) *Cryptomeria japonica*, where wood is largely used in this direct fashion. With the gold lettering the cover looks handsome indeed, and must have interested and puzzled many. Amaryllis (or *Hippeastrum*) seedlings are specially offered here, and a coloured plate of *Schizanthus wisetonensis* appears. Their renowned strain of *Streptocarpus*, their large-flowered *Petunias*, *Lobelia tenuior* (new), and *Polyantha Cinerarias* are each prominently figured. The Potato section occupies two-and-a-half pages, while Peas and Beans run to nearly ten.

ROBERT VEITCH AND SON, Exeter, include *Kochia scoparia*, that interesting half-hardy annual, and their vegetable portion includes a number of their own novelties.

THOMAS S. WARE, LTD., Feltham, Middlesex, combine seeds and tuberous Begonias, Lilies, Gladioli, &c., in their spring catalogue. For the Begonia section alone this catalogue will be in general demand, and its pages are bright with illustrations.

In **WEBB AND SONS'** publication (from Wordsley, Stourbridge) we note the following subjects occupying leading positions in the pages: Cinerarias, Primulas, Calceolarias, Cyclamens, Carnations, annual Asters, and Begonias. Potatoes have ten pages, while views of the Kinver seed farms appear. Collections of vegetable seeds are offered from 2s. 6d. up to ten guineas.

B. S. WILLIAMS AND SON, Upper Holloway, London, draw attention to their lawn seeds and their special strain of China Primulas, fringed and even-edged.

Geonoma Pynartiana.

There is a nice specimen of this very handsome Palm in the Glasgow Botanic Garden, which is worth looking at by those near the city who are fond of plants. It is one of the Malayan species, and one of the most ornamental of the genus to which it belongs, with its fine glabrous leaves with prominent midribs, and ranging from 2½ ft long by nearly 1 ft broad upwards. It is all the more interesting seeing that it is a plant about which there seems some difference of opinion as to its name. According to some of high authority, it is not a *Geonoma* at all, but an *Iguanara*, and they think that the proper name is *I. Speranskyana*. Whatever its true name, it is a fine stove plant, none the less valuable from its moderate growth, handsome as it is.—A.

Book Notice.

Australian Gardening.*

This is only a small booklet, a brochure one might call it, and comes to us in paper covers. Ere dipping into the matter of the book, it will be helpful towards the understanding of it if we name the chapters, which are as follow:—Principles of garden architecture; designing gardens to meet local conditions; materials available for the practical work of making gardens; the selection and arrangement of permanent plants in garden schemes; planning, forming, and maintaining small gardens; garden management; and, lastly, a Rose garden. The brochure includes 72 pages, 8½ in by 5½ in.

In his introduction Mr. Bogue-Luffmann observes: "We have been here more than a hundred years, to learn little beyond the fact that Nature is stronger than we, and that the average garden space is an unsightly and expensive nuisance. We have not come to see that our work is weak and unsuitable to our surroundings, and that we must invent and be more thorough if we would achieve beautiful and lasting results. We are so far away from the dignified and finished work of the Old World as to be undisciplined, apathetic, and easily satisfied. In fact, we have been busy taking possession of the country and securing ourselves, and have left the fashioning of our gardens to casual hands. But we are settling down and demanding more of the arts and graces of life. It is therefore incumbent upon us that we consider the nature of our premises and possessions, and adopt a system of gardening distinctly in accord with natural conditions."

Chapter I. is really an epitome of the history of garden styles, and the author sums up by saying that "it is from the study of the different types of domestic dwelling, and the countries and social life of the people which originated them, that we shall obtain a clue to the true significance of gardening, and how to design and practise well in Australia."

He then goes on to discuss what parts of the European styles of gardening are applicable to Australia, and he has summarised the leading principles of garden designing into rather bald sentences, such as: "Similarity reduces the size and interest of the garden. The actual foundation must provide true form; plants of themselves cannot do this. Two distinct styles of gardening may not be seen from one point of view. Straight lines are a necessity; curves are ever most beautiful. Planting high objects near to houses tends to dwarf them. Rocks, mounds, and water must show reason for their presence"—and so on.

Mr. Bogue-Luffmann is surely original when he says: "For studies in design, and the apportioning of trees and shrubs, and such materials as provide the outlines of gardens, nothing is so worthy of our notice as the clouds, on what may be termed lazy evenings." This chapter he concludes by naming the books which he believes will produce "a right attitude of mind."

On page 27 we find this: "The most ugly blot on Australian gardens is in the wretched boundary fences. Any man building a house costing £1,000 and upwards, and failing to put a wall round it, should be put in gaol and kept there. No house is finished without a stone or brick wall, or an artistic iron railing set in brick or stone work. Naturalness must be observed here (in Australia) as far as possible, where houses are of the Dutch, Gothic, and Queen Anne styles."

And on page 30: "Such gardens as exist on the Mediterranean coast at Malaga, Cartagena, Nice, Mentone, Monte Carlo, and Genoa, afford the best subjects for study; and anyone devoting him or herself to gardening in Australia should not fail to become familiar with the geographical situation, architectural features, and surface plans of all the best gardens of the Mediterranean region."

Our concluding excerpt is concerned with the gardeners of Australia, whom Mr. Bogue-Luffmann trounces in general: "All-round gardeners, full of resource and possessed of good taste, are extremely rare in Australia. The cause is to be found in the absence of any systematic training grounds, for not one of our State botanical or other public gardens goes so far as to train its own employés, much less prepare gardeners for the benefit of the general public, and those who come from other lands are so convinced of the merits of what they already know that they fail to recognise and work in accord with the demands of local climate. Here and there one sees a garden well managed as the result of an intelligent gardener, but as a general rule the men employed may be designated garden robbers. This is not said unkindly, but so long as it remains unsaid we shall be begging and waiting for a more rational and better garden. We see no attempts to stay the robbing hand of our summer climate or any intelligent appreciation of the significance of the Australian garden."

"Broom and barrow men they are for the most part, regularly reducing the garden area to unshapeliness and poverty. Their principal work is sweeping up and carting off the vital foodstuffs

and moisture-holding properties of the soil. To the eternal employment of the broom and barrow we may attribute no small loss of our soil and wasted efforts in other directions."

The booklet, though small, is crammed with suggestions and logical principles, so that it can be used as a little handbook in this country, quite as much as it will be, we hope, in Australia.

Royal Horticultural Society.

Some Features of the Annual Report.

The annual general meeting of the Fellows of the Royal Horticultural Society will be held in the Drill Hall, Buckingham Gate, at 3 o'clock, on February 9. The report of the council for the year 1903 has already been circulated among the Fellows, and it is exceedingly interesting. First there is an announcement that "to celebrate the one hundredth year of the society's existence it has been decided to hold a centennial dinner at the Hotel Metropole on Thursday, March 3," to be confined to gentlemen, tickets to cost 21s. each.

Secondly, the Horticultural Hall is noticed, but only briefly, and we observe that nearly £24,000 of the £40,000 required is promised or paid. The Wisley garden will be slowly developed at first. It will, however, be necessary to build "a couple of small dwelling-houses for the superintendent and foreman, a room where the council and committees can meet, and suitable ranges of glass houses and pits."

"There are many other objects which will hereafter be desirable at Wisley, such as a scientific department with residence for a professor and laboratory attached, bothies for young gardeners, rooms for students, &c. But the council feel it imperative to allow these matters to wait until the Horticultural Hall is paid for and furnished and its upkeep expenses provided."

The exceedingly rapid increase in the number of Fellows (1,412 having joined in 1903) has frightened the council so much that they propose a new bye-law: "That the minimum rate of Fellowship should in future be raised to £2 2s., except in the case of *bonâ fide* gardeners, persons living abroad, and journalists."

It will have been observed by some of our readers that the Chiswick meteorological tables have been absent from our pages during the past two weeks. The reason is that the instruments are being taken to Wisley. "Special thanks are due to Mr. Edward Mawley, Fellow of the Royal Meteorological Society, both for his annual kindness in drawing up the meteorological report for the *Journal*, and also for so kindly superintending the removal of the instruments from Chiswick and their re-erection at Wisley."

The following is another paragraph from the report:—"The council have received a courteous invitation to send a representative of the society to the Jubilee of the Royal Scottish Arboricultural Society, which takes place on February 16, and they consider themselves fortunate in having obtained the consent of Mr. A. D. Webster (Regent's Park) to represent them on this happy occasion."

A few items from the revenue and expenditure report are interesting. Under "Establishment Expenses," £853 17s. are for salaries and wages; the rent of the office costs £203 3s., which will be saved when the hall is finished; the *Journal* costs, for printing and postage, £2,219 8s. Under "Shows" we find the Temple Show costs £716 11s.; Holland House Show, £622 8s. 10d.; Fruit and Vegetable Show at Chiswick, £405 1s. 10d. At Chiswick some of the items are: "Rents, rates, taxes, insurance, £273 7s. 1d.; superintendent's salary, £225; labour, £661; coal and coke, £225 17s." Wisley stands thus: "Rates and taxes, £6 4s.; labour, £111 11s.; garden implements, £24 11s.; miscellaneous expenses, £13 2s. 5d.; repairs, £11 17s. 6d." For Wisley, £12 12s. have been received in donations. The balance for the year is £3,641 10s. 10d., and the invested capital now amounts to £18,429 15s. 7d.

The Latest in Tree-Felling.

Two new methods of tree-felling are announced, and it is claimed for each that it makes the woodman's axe a thing of the past. The first invention is a pneumatic saw, which is said to cut its way through the stoutest of trees in a very few minutes. One of these machines, recently exhibited in New York, weighed less than ½ cwt., yet was said to be capable of felling 150 trees a day, each tree being 3ft to 4ft in diameter. The saws are driven at a high rate of speed by air pressure, the tubing which conveys the air from the compressor being made of any length required, so that the machine may be sufficiently distant from the saws to prevent accident when the tree falls. The second method consists in substituting for the ordinary saw a platinum wire, electrically heated. The wire cuts through the tree very quickly, and, of course, produces no sawdust.

* "The Principles of Gardening for Australia," by C. Bogue-Luffmann, Principal of the School of Horticulture, Melbourne. Published by the Book Lovers' Library, Melbourne, 1903. Price 2s. 6d.

Cacti at Handsworth, Birmingham.

It will be within the recollection of the readers of the *Journal of Horticulture* that in the reports of the Handsworth and the Birmingham Chrysanthemum Shows, mention was made of the attractive and interesting collections of Cacti exhibited (not for competition) by Mrs. J. G. Thompson, of Handsworth, and a photogravure of which is here reproduced. As an amateur grower Mrs. Thompson and her daughter are most assiduous in their attentions to the healthy and fresh-looking assemblage of the prickly and formidable noli me tangere succulents, and several of the specimens present a grotesque effect, the result of grafting three or four kinds on one stock.

A meritorious feature is the correct nomenclature, the names being neatly written upon small labels, which was particularly observed by Miss Thompson in her neat and effective arrangement in Bingley Hall Show. It may be remarked that the fair culturists do not affect to introduce those gigantic species which require a high-roofed structure, though there is no knowing to what extremes their enthusiasm will lead them to. The following are a few of the choicer kinds favoured by the twain devotees:—*Mammillarias phellosperma*, *nivea longispina*, *Pfeifferi*, *macromeris Greggii*, *cerrifera longispina*, and *nogalensis*. *Opuntia microdasys*; *Echinocactus Wisleyeni*, E. "Le Conti," E. *hexædrophorus major*; *Echinocereus Englemanni albinospinus*; *Anhalonium* (correctly *Mammillaria*) *Leweni* and A. *Williamsi* (the latter two spineless, and resembling the tuber of the Globe Artichoke).—W. G.

Societies.

Sheffield Chrysanthemum : Annual Meeting.

The annual general meeting of the above was an important one, as the selection of a secretary and other officers was rendered necessary by the death, a few months ago, of Mr. Houseley, who had held the office for many years. There was a very good attendance, and the accounts for the past year were submitted. These showed a loss on the year's working of about £31, brought about chiefly by the heavy rent paid for the Cutlers' Hall for the annual show (£50). The subscriptions were some £5 in excess of last year, but the prize money amounted to about £14 more than in 1902. Then again the gate money was some £18 less, the amount taken for admission, including tickets sold, amounted to £181 10s., which, considering the weather, must be considered satisfactory. A saving in expenditure had been effected on various heads, but owing to inability to obtain a hall on more satisfactory terms, a loss was inevitable. The "Sheffield boys," however, have some grit, and intend making another bold effort to ensure success financially, as well as from a floral point.

A resolution was unanimously passed expressing appreciation of the service rendered by Mr. Willford, who had acted as secretary, pro tem, and this gentleman—whose address is 96, Greenhow Street, Sheffield—was elected secretary of the society, with a very encouraging expression of goodwill. Mr. J. G. Newsham, M.B.P.S., was re-elected treasurer, and was also elected as the society's representative to the R.H.S.—an honour well deserved. Messrs. R. Gascoyne and H. Slaney were re-elected trustees, and J. Dixon and G. H. Reader auditors. The office of librarian was rendered vacant by the election of Mr. Willford as secretary, and Mr. W. Lewendon was elected to this office. Mr. Brewer was again elected curator, and Mr. Carlton collector. S. Roberts, Esq., M.P., was re-elected president, the judges for 1904 being Messrs. Jones, Crane, Weeks, and Welch. The annual dinner will be held on the 29th inst.

Beckenham : New Fruits.

On Friday, December 8, the members and friends of the Beckenham Horticultural Society experienced a great treat (one that has been looked forward to for some time with great interest) when Mr. George Bunyard, V.M.H., gave a lecture on "New Fruits." The chair was taken by A. J. Baker, Esq., L.C.C., who in his opening remarks certainly did not flatter the suburban gardener for his hardy fruit culture. Mr. Bunyard, who was enthusiastically received, commenced by correcting a remark that fell from the chairman, to the effect that trees to succeed should be obtained from a soil similar to that to be planted on. This, said Mr. Bunyard, was one of those theories hard to kill. There was nothing whatever in it. The advice was given to procure trees with first-class roots, and the soil theory might be dismissed. The lecturer then took the fruit in alphabetical order. A few of the good things were Allington Pippin Apple (this is hardier than Cox's Orange, and will succeed where Cox's fail); Nectarine, Cardinal; Grape for wall (hardy), Reine Olga; Gooseberry, May Duke, earliest and best for gathering green; Giant Prune (Burbank's); Strawberry,

Given's Late; Daw's Matchless Rhubarb; and the Loganberry (as many as 30lb of fruit has been gathered from a single stool). These and many others had the very best of characters from Mr. Bunyard. Very many valuable cultural hints were also given. At the close the hearty thanks of the meeting were accorded both lecturer and chairman.—J. C.

National Chrysanthemum.

A meeting of the executive committee was held on the 11th inst., Mr. Thomas Bevan presiding. After the reading of the minutes and some correspondence, a draft financial statement was submitted, showing a balance in hand of £69 9s. 11d. on the year's working. With a good sum as reliable assets, and with but a small amount as liabilities, this was considered very satisfactory, and the statement was passed for audit. The report of the Finance Sub-Committee recommending that the sum of £50 be added to the November schedule of prizes, was accepted. A draft report of the committee, prepared by the secretary, was read and passed for presentation at the annual general meeting on February 1. A census of Japanese and incurved blooms shown at the Crystal Palace, prepared by Mr. Young, of Dulwich, was accepted and ordered to be printed in the annual report, and Mr. Young was thanked for the same.

It was reported that no reply had yet been received from the Crystal Palace in reference to the dates of the shows in the present year, and the secretary was instructed to write and request that definite dates as proposed by the committee may be at once fixed. Mr. Joseph Lake was nominated for election as auditor at the annual general meeting. Arrangements were made for a meeting of the Schedule Revision Sub-Committee on the 18th inst. A vote of thanks was passed to the chairman for presiding.

Chester Paxton : Living Organisms.

A well-attended meeting was held in the Lecture Theatre of the Grosvenor Museum on Saturday, under the presidency of Mr. N. F. Barnes, Eaton Gardens, when Mr. J. D. Siddall delivered a lecture entitled "Living Pictures of Living Organisms," which was profusely illustrated by microscopic slides and cinematograph pictures. The first organism dealt with was the American Water Weed (*Anacharis Alsinastrum*, Bab.). Mr. Siddall described very fully the introduction of this plant into Great Britain, the how and why of its success and defeat, as well as its adaptation of structure to habitat. By the aid of microscopic slides and cinematograph pictures, the lecturer was enabled to show his audience the plant in all its various stages of growth; but the cause of its gradual disappearance from Great Britain was admitted to be an unsolved mystery.

The fresh-water Hydras were dealt with in a similar manner, the lecturer's remarks, as well as the slides and pictures, being greatly appreciated. Cheese mites, and mites generally, came next in order, the concluding subjects dealt with being the chameleons and toads, both of which proved to be excellent subjects for the cinematograph, the "living pictures" of these being most perfect and most natural in every respect. Judging from the frequent and hearty applause, it was evident that both the lecture and the pictures were highly appreciated by all who were present. On behalf of the members, Mr. John Jackson proposed, and Mr. John Wynne seconded, a very hearty vote of thanks to Mr. Siddall for the great trouble he had taken with his subjects, and it was generally admitted to be one of the most interesting and most entertaining evenings in the history of the society.

Birmingham Gardeners' Association.

The annual meeting for the presentation of the society's report and balance-sheet for the past year was convened on the 11th of January. There was an exhibition of cut Chrysanthemums, in competition for the prizes offered by the society. Mr. W. B. Latham occupied the chair. The report and balance-sheet bore favourable comparison with former audits, though there was a slight decrease amongst the honorary members. Professor Hillhouse, F.L.S., of the Birmingham University, was again elected as president for 1904, as also were the officers, whilst there were two or three changes in the committee, chiefly owing to repeated non-attendances. Mr. Walter Jones, gardener to Thos. Gladstone, Esq., Kelton, Edgbaston, was worthily accorded the first prize for three vases of Chrysanthemum blooms; and Mr. J. Sceany, gardener to Alderman Lawley Parker, Edgbaston, the second prize for very good examples. Certificates of merit were awarded to the following non-competitive exhibitors, viz.:—Mr. F. Dedicott, gardener to W. W. Wiggin, Esq., Griffin's Hill, Sellyoak, for an excellent exhibit of Cyclamens; to Mr. Palmer, manager to Messrs. Simpson and Sons, Chadvalley Nursery, Edgbaston, for vases of Chrysanthemums; and to Mr. A. Snead, gardener to E. M. Sharp, Esq., Edgbaston, for a small collection of well-kept Apples. At the meeting to be held on the 25th inst. Dr. A. B. Reginald Buller, of the Birmingham University, is scheduled for an address.

Garden City Association.

Fifth annual report, for the year ending October 31, 1903:—

"In some respects the year just closed has been the most eventful in the history of the Association. Founded rather more than five years ago, for the purpose of giving publicity to the scheme suggested by Mr. Ebenezer Howard in 'To-morrow,' the Garden City Association has now considerably extended its basis. This step was taken at a special general meeting held at Essex Hall, Strand, on July 9, 1903, when it was unanimously agreed that the following should be considered the objects of the Association:

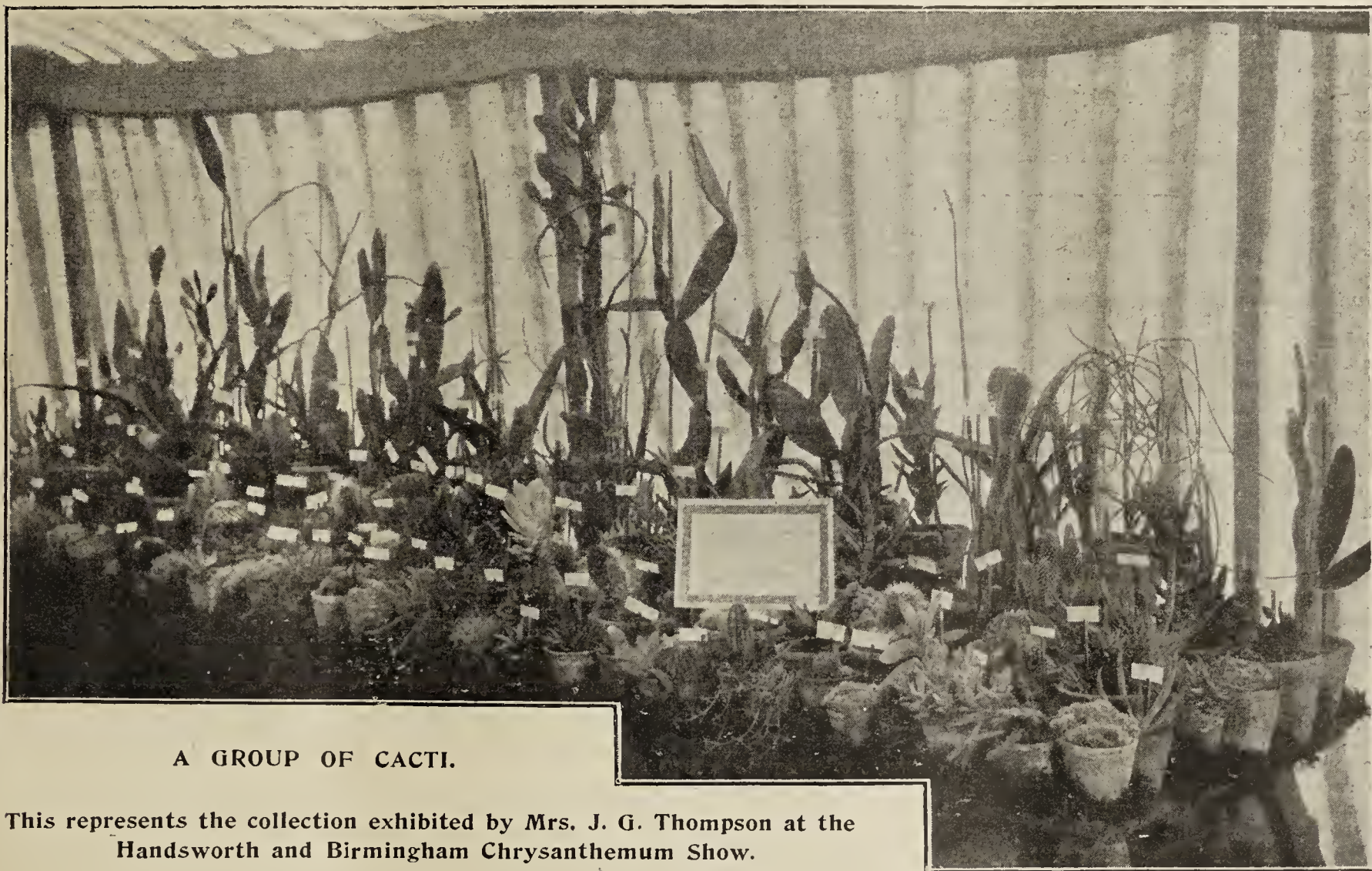
"To promote the relief of overcrowded and congested areas, to secure a wider distribution of the population over the land, and to advance the moral, intellectual, and physical development of the people by—

"(a) Taking initial steps to establish garden cities in which the inhabitants shall become in a corporate capacity the owners

organisations having a similar object in view. As an illustration of this we may point out that a useful working alliance has been formed with the National Association for the Prevention of Consumption, the hon. treasurer of which, Mr. Malcolm Morris, has been elected a vice-president of the Association.

"The event which makes the year just closed unique in the history of the Association is the successful issue of the Pioneer Company's work. Formed eighteen months ago with the object of investigating estates, this company has selected one of about 3,800 acres in extent, situated in Hertfordshire, between Hitchin and Baldock. This has now been acquired by the "Ultimate Company," known as the First Garden City, Limited (entirely distinct from the Association), in which the Pioneer Company is merged, and on this site—which is in many respects admirably suited to our purpose—the first Garden City will be built. Further applications for shares will be welcomed by the directors.

"During the year the Association has been endeavouring to bring its principles before the Admiralty, with a view to the



A GROUP OF CACTI.

This represents the collection exhibited by Mrs. J. G. Thompson at the Handsworth and Birmingham Chrysanthemum Show.

of the sites, subject to the fullest recognition of individual as well as public interest.

"(b) Encouraging the tendency of manufacturers and others to move from crowded centres to rural districts, co-operating with such manufacturers and with public bodies in securing healthy housing accommodation for the workpeople in proximity to their places of employment.

"(c) Co-operating with other organisations in promoting legislation to enlarge the powers of public authorities with a view to securing a solution of the housing problem and improved systems of communication.

"(d) Stimulating interest in and promoting the scientific development of towns, so that the evils arising from haphazard growth may in future be avoided.

"(e) Promoting the erection of sanitary and beautiful dwellings with adequate space for gardens and recreation.

"Of the above clauses (a) shall be considered the primary work of the Association and the remainder secondary."

"It will be seen that this widening of the scope of the Association's work tends greatly to increase its usefulness. It is now possible for us not only to advocate the importance and effectiveness of our specific remedy for overcrowding, but to encourage movements of a related character, and to assist other

laying out of the new naval town at the Firth of Forth. Two of our vice-presidents, Sir John Leng, M.P., and the Hon. Claude Hay, M.P., have asked questions bearing on the matter in the House of Commons, and have received replies which indicate that the Admiralty regards the matter not unfavourably. This has greatly helped our Scottish propaganda, and it is hoped that a branch may shortly be formed in Edinburgh. The Association has been interesting itself in the development of an industrial village at the Falls of Foyers, in Inverness-shire."

Bristol Gardeners.

The first meeting of the Bristol and District Gardeners' Mutual Improvement Association for this year was held at St. John's Parish Room on Thursday, January 14. Lieut.-Col. Cary Batten took the chair, and there was a large attendance. The chairman, in opening the meeting, expressed his pleasure in the fact that he was able to be present, and hoped the society would have a very successful year. The lecturer was Mr. Davy, of the Cardiff Gardeners' Association, his subject being "Orchids." Prizes, offered by the president for three plants in bloom, were awarded as follows:—1st, W. A. F. Powell, Esq. (gr., Mr. Raikes); 2nd, J. Colthurst Godwin, Esq. (gr., Mr. McCulloch); 3rd, W. Howell Davies, Esq. (gr., Mr. Curtis). Certificates of merit were awarded to Lieut.-Col. Cary Batten for three Cypripediums, and to W. Howell Davies, Esq., for a Cypripedium.

* On lines suggested by Mr. Ebenezer Howard in "Garden Cities of To-morrow." (Cloth, 1s. 6d.; Paper, 1s.)



Pear, Jersey Gratioli.

Though seemingly not catalogued by some of the leading fruit tree nurserymen, this old variety is nevertheless a most excellent Pear, and will do well where any other variety will thrive. The fruits are ripe in October, and do not keep long. The tree is an excellent bearer as a standard, being hardy and vigorous. With reference to its history, the "Fruit Manual" furnishes the following: "This variety is known in Jersey by the name Gratioli, and under this name it had for some years been grown by Mr. Norris, of Sion Hill, Isleworth; but as Gratioli is the Italian name of Bon Chrétien d'Été, to prevent confusion Mr. Robert Thompson named the present variety Jersey Gratioli. It must have been a considerable time in this country, as there is a tree growing in the garden of H. M. Bucknall, Esq., of Bedminster Lodge, near Bristol, which he considers (1856) to be fifty years old."

Our figure of a wall tree in fruit came to us from Sussex.

Pears in Belgium.

In the course of a tour in Belgium last autumn, among the many things of interest to a foreigner nothing struck me more than the great success with which Pears are grown in that country, not simply in a few well-tended gardens here and there, but throughout the length and breadth of the land—in the garden of the humblest cottage as well as in that of the plutocrat. The merest tyro knows that the large majority of Pears have French names, and it is commonly assumed from this that all, or nearly all, Pears were originally raised in France.

A very large number originated in that country, it is true, but French is the language of the educated classes of Belgium, and according to the census returns of that country about half the population speak French only, while a large number, in addition, speak some sort of French as well as their native tongue, Flemish. Hence it is that almost all the Pears which have been raised in Belgium have French names.

Success in Pear culture, and in the rearing of new sorts, is no recent thing in Belgium, and was more celebrated, if anything, seventy or eighty years ago than it is to-day. England is becoming a land of nurserymen and skilled fruit growers, most of whom bring out new varieties of some sort of fruit, and among them, of course, new Pears, as, for instance, Rivers' Conference and Fertility, Bunyard's Michaelmas, Nelis, Kelway's King, and others.

In looking through the list of Pears in Dr. Hogg's "Fruit Manual," with the special object of seeing how many of our best Pears owe their origin to Belgium, I picked out these, amongst others: Bergamotte Esperen, Beurré Diel, Beurré de Jonghe, Beurré Sterckmans, Durondeau, Easter Beurré, Glou Morceau, Josephine de Malines, Maréchal de Coeur, Nouvelle Fulvie, Thompson's, and Winter Nelis, all of which are justly famous Pears, and worthy to be included in any good collection.

But the subject of this article is not the history of the raising of Pears in Belgium, but the methods in which Pears are grown there, and how far we may profitably imitate them. It was very remarkable to notice how, in the villages and outlying country districts, more especially in the region known as the Ardennes, that is, roughly, the whole of the country south-east of a line drawn from Liège to Tournay or Namur—that the trained wall Pear tree was almost as common an adjunct to a house as Vine is in Italy. The most common position for them is on the wall of the house, the windows often being enclosed, as it were, in a framework of Pear foliage. Garden walls there are not nearly so common as in this country, doubtless owing to the expense of building them, as the very large majority of the people in the country districts are of obviously humble means, people like the well-to-do English squire being very scarce; but a very frequent site of an excellently trained wall Pear tree is the side of an outbuilding, such as a cowhouse, stable, or barn.

In one narrow valley above Dinant, where the garden was at the foot of a perpendicular limestone cliff, the Pear tree was trained up the face of the cliff and reached to a considerable height, so that a fair-sized ladder would be necessary to prune the tree and gather the fruit. The trees are generally what I should describe as very long-handled gridirons, more correctly termed gridiron-trained standards, or riders. Where the trees are on the side of an outbuilding to which animals might have access this is an obvious advantage in keeping the branches

out of the reach of the cattle. The way in which many of the trees were laden with fruit was most remarkable, and here it may be remarked that in Belgium, unlike this country, 1902 was a remarkably good fruit year, orchards everywhere straining under the burden of the fruit.

Here the ordinary wall-trained Pear tree, except in large gardens where really skilled gardeners are kept—and every humble amateur knows how difficult it is to get such men for one or two days a week—is usually a mere mass of foliage, the tree sending out abundant breast-wood from top to bottom during the summer, which is all cut off in the late summer, autumn, or winter, when the tree repeats the process the season following, and so on ad infinitum, fruit being, if not the exception rather than the rule, at least very rare in any quantity. But many of these trained trees in Belgium were literally covered with Pears as thickly as standard trees are often seen laden in this country, but rarely seen on a wall outside a nurseryman's catalogue, unless it is on some well-managed cordons. I remember several trees in particular in Melreux—between Liège and Dinant—where each branch of the gridiron-trained trees was as well laden as a very successful cordon, carrying I should say twenty to thirty Pears.

The lesson to be learned from all this is that what can be done in Belgium can be done here, the climate being practically the same. Part of the secret of their success doubtless lies in the fact that Pear culture has been properly practised for generations, and that a knowledge of the proper methods of culture is there much more commonly diffused among amateurs than over here. But, with the multitude of books on fruit culture, anyone who wants to know the scientific basis upon which the growing of any particular fruit rests can have no excuse for remaining in ignorance, while the amount of excellent wall space for Pears which goes unused in this country is deplorable, so that we have the means of acquiring theoretical knowledge and the opportunity of practising it.—A. PETTS.

(To be continued.)

Gadding and Gathering.

Fruit Culture at Melrose, Roxburghshire.

Melrose Abbey: That name carries distinction to all the ends of the earth. Abbotsford: That is, perhaps, even better known from having been the home of Sir Walter Scott, and Melrose is the post town for Abbotsford. It is one of the cosiest small townships in the Scottish Borders, lying on the western slopes of the Eildon hills—three moderate heights that rise up from the surrounding regions, and are Heather clad—while the sleepy village of Gattonside with its few dozen houses set amid gardens and decrepit orchards, faces Melrose from the rising land on the opposite side of the Tweed, a suspension bridge linking the two. This is where I spent my happy, careless boyhood, and thoughts often wander back again.

The fruit supply of this country allures the attention of many of us, and we affirm that no county or district, either in Old England or Bonnie Scotland, need have an undue preponderance of capability over others in the production of high-class fruit, especially Apples and bush fruits. Gattonside comes back to mind as a place all orchards. It certainly can grow unexcelled Cherries and Damsons, for the gable ends and front walls of some of the sheltered houses gave rich returns of Cherries year by year, while Damsons were sufficiently bountiful and tempting to induce the mill youths of Galashiels to come down on "foraging" expeditions Sunday after Sunday in their season. And so with Apples. As an urchin trudging to school, I was not backward in going forward, if an Apple orchard lay that way, even though I had filled my pockets with the "king of fruits" ere leaving home. But barbed wire fences were hardly in vogue then.

It was to ascertain whether any progress had been made in fruit culture, in packing, grading, and marketing, that I wrote to an old friend—a gentleman of experience—though his gardening has always been on a limited scale, and his own letter will be more interesting if given in the form in which he wrote it. The last sentence seems to me to show a sad state of affairs, when American Apples can be sold profitably in an inland Scottish Border town, forty miles at least from the port of Leith. Perhaps the men of Melrose and the surrounding parts will give us cause yet to praise their discernment and energy, but that at present cannot be. The Board of Agriculture and Fisheries might well look up the Border districts in this relation. The letter already mentioned is as follows:—

"There has been considerable increase in indoor fruit growing in and around Melrose for some years; but there is very little increase in outdoor fruit for six or eight years. The chief market is Galashiels, and the population has gone down there four or five thousand. Formerly we took up our Strawberries and Raspberries in bulk, 6lb to 8lb or 12lb in a basket or hamper; now we take them all up in 1lb baskets or punnets. There is

very little grading of Strawberries; of course, we keep the different varieties separate. Dr. Hogg and Vicomtesse Hericart de Thury (Garibaldi) are the leading varieties grown here; and, of course, Black and Red Currants are in bulk.

"With regard to tree fruits there was next to none in the locality last season. I had a fair crop of Victoria Plums, and got £12 for them, which was good for my little garden, and we grade them, selling at from 1½d. per lb to 6d., according to quality. Darnick Tower was the only other garden that had a crop hereabout. There has been no increase of trees planted for twenty years, except 500 or 600 Victoria Plum trees.

"The peculiarity of this locality is the large number of small growers of outdoor fruits, men having gardens of half an acre to three acres, and they just move on in the old ways: but they have a fairly good collection of fruit trees. Mr. Dickson from Dalkeith has taken Mr. Thomas-Nichols' farm at Darnick—sixty acres—and he is to grow outdoor fruit and vegetables.

"Mr. Lindsay (another marketman) is putting up a small glass house at the present time, and would have put up more if he could have got a lease of his place. The salesmen in Edinburgh are very pleased with his Tomatoes, and urge him to put up more houses. They, indeed, offered him the loan of money to do so. There is a Mr. Davidson from near Swansea, Wales, and who had a pretty large place there, who has bought Mr. Small's house (£1,500) and intends to put up houses there, to grow for the market. Cucumbers seemed to be his leading article in Wales, along with Grapes, and Tomatoes, and Chrysanthemums, each of which he intends to cultivate here. Mr. Mailan put up four or five glass houses at the east end of Galashiels about eight years ago, and grows a variety of fruits and flowers. Mr. Laidlaw is putting up two houses at the west end of Galashiels principally for Tomatoes; and Mr. Gilroy, of Darnick, is erecting a house for Tomatoes, so you will see that there is an increase in a small way of culture under glass, and most of the produce is sent to Edinburgh.

"The gardener at Gattonside House is the only one here who goes in for root-pruning and lifting the trees after they are three years planted. I believe there is more fruit consumed in Galashiels than any other town of its size on this side of the Borders. One hawker, or coster, sold at the rate of eighteen barrels of American Apples a week by door to door visiting in the autumn."

Plants at Kew.

In the Heath house *Brodiaea Sellowiana* is throwing up a few of its buttercup-yellow flowers, which are cup-like, with six acutely pointed segments, three inner and three outer, as typical of the Liliaceae. Each flower is borne singly on its own stalk, surrounded by the green, grassy leaves. *Veltheimia viridifolia*, also bulbous, is a handsome and fairly well-known South African plant. Its terminal racemes of purplish floral tubes on smooth, succulent, green and purple chequered stems, make it a distinctive and welcome subject at all times. The succulent, shining green leaves, with sinuous edges, are very handsome.

Capsicum baccatum furnishes a dwarf, woody species, evidently inclined to branch considerably, and it has elliptic, cordate foliage. The fruit capsules are about the size of a Cherry stone, and coloured bright orange crimson. It is a British Central African plant, and seeds came to Kew in 1901.

Another "new" plant from B.C.A. is *Plectranthus crassus*, whose dense but pleasing verticillate spikes of deep lavender blue labiate flowers are nearly a foot long, and give off branchlets from the base of the main spike. The stems are four-sided, but more rounded toward the base. The foliage leaves somewhat closely resemble those of *Tibouchina (Lasiandra) macrantha*. They are opposite, but the pairs are at right angles to the pair immediately below. The Kew plants now flowering are in 5½ in pots, and are fully 3½ ft high. *Plectranthus chiradzulensis* var., introduced in 1898 from B.C.A., has leaves nearly like the common Nettle, though much less hairy, and with a broader base. As a pot plant it branches considerably, and the stems terminate in delicate, branching, verticillate racemes, the pretty bright blue flowers exactly resembling in shape the foot of a knight in armour. This

simile is quaint, but it is a good one. The purplish stigma protrudes between the adjoined edges of this boot-shaped addition to the corolla, thus excluding it entirely from the pollen of its own anthers. Botanically, it is a most interesting type. The foliage leaves seem to be possessed of a rust, which disfigures them.

One of the most interesting plants in the stove was a *Poinsettia pulcherrima* with pale tea or primrose coloured bracts. Indeed, there are quite a number of plants of this "sport," and it contrasts well with the ordinary form having scarlet bracts. It has been named *P. p. alba*.

A new *Cœlogyne*, named *graminifolia*, from the long, narrow character of its leaves, furnishes a bright display in one of the Orchid houses. The plant bears a large number of racemes, which hang forward just over the edge of the pot, each one bearing three or four flowers. These are briskly fragrant, and have a rich yellow lip, the segments being creamy with a touch of salmon. It came to Kew recently.

The Acacias are flowering meagrely as yet in the Temperate House, and the following are the species: *A. platyptera*, *linearis*, *linifolia*, *neriifolia*, *pentadenia*, and *dealbata*. The *Natal Laburnum (Calpuria aurea, Baker)* was noticed, *Dermatobobrys Saundersiae*, *Loropetalum chinense*, *Cytisus filipes*, *Azalea indica* vars., *Camellias*, *Tritoma longicollis*, *Veronicas*, and *Daphne indica rubra* were also in flower.

A number of the earlier bulbous Irises are flowering in an open-air border, while in the Alpine House there are *Narcissus Bulbocodium*, *Snowdrops*, *Crocuses*, *Merenderas*, *Cyclamens Coum* and *ibericum*, and a few other subjects.—WANDERING WILLIE.

The Potato Trade in America.

Potato growers in this country will not be displeased to hear that the prices of Potatoes are advancing in America, and are likely to advance still further. From the point of view of a speculative shipper, however, it would appear that the prices in America will require to rise a good deal farther before there would be any inducement to ship Potatoes from Great Britain to



Pear, Jersey Gratioli.

America. The latest quotations of prices in America are only at the rate of 2.25dols per sack of 168lb, or slightly over £6 per ton, from which a charge of £3 per ton for freight, import duty, dock and commission charges, would be made, leaving only a free balance of £3 per ton. In fact, the prices in America are only about the same rate as prices in London, where there is no import duty to pay, so that British merchants, as well as British growers, will much prefer the home markets while prices in America and London remain relatively as they are just now. A good many Potato merchants in this country believe, however, that if prices should advance any farther in America the surplus stocks of Germany will be drawn away to the New World, and that the prices in our home markets will then advance considerably.

THE BEE-KEEPER.

The Stewarton Hive.

I have to thank "E. E." for his remarks on these hives, which I note. My main difficulty with the Stewarton is this: How can I prevent swarming? I have at present three hives, and having no time and space to have more, I am looking forward to this summer, when I shall have three more swarms and three casts, but I cannot see my way to put these into new homes. Should they come off I would prefer to put them back to their old hives, thus strengthening them; but I fail to see how this can be done. I am told the older queen is the better of the two, and the one to keep, but if the young queen rules the hive after swarming, how can I get to her to dispel her before I put back the old queen? If I could ascertain how to put all the bees back that swarm, and keep one good hive containing two, three, and more body boxes, all on top of each other, with one queen ruling, and bees entering from bottom hive, I can safely say that I could make these hives very profitable. What appears to me to be wanted is a large number of bees. Perhaps "E. E." will give me his views on this important matter; also to let me know which is the best queen to keep after swarming.

—HEXAGONAL.

I observe in your recent issue "E. E.'s" description of the Stewarton hive. I am afraid "E. E." has never had much to do with this hive, or he would have known more about these popular and most profitable Stewartons, so common in Scotland. "E. E.'s" objection to the Stewarton is expense; but I cannot see where it comes in. The octagonal body box can be got for 3s. or 3s. 6d., and the supers bear no expense whatever. I use an ordinary box, the size of which is limited according to seasons. I prefer putting on super boxes which will contain 7lb, for in bad seasons the bees take to a smaller box better than a bought super box, which contains when full 21lb.

So far as covering in winter is concerned, this can be done very cheap—the wood for which can be bought for a few shillings—and if the apiarist is a handy man he can put the pieces together in spare time, which reduces cost. The only covering I have is an outer casing, size 20in square, as stated by "E. E." This size allows for packing betwixt the body box and casing on top of casing. I have an ordinary bar-frame top. The whole hive presents an appearance similar to the bar-frame, the only difference remaining in the foundation stool. For this I use an ordinary square stand of wood, which must be, of course, a little larger than the casing. Taking the body box at 3s. 6d. and the purchased wood for the covering at a couple of shillings, the whole hive can be obtained for about 7s. 6d. Boxes for supers can easily be got from grocers free.

For feeding purposes "E. E." suggests a trough fitted in the floorboard. This I never heard of or saw done. I wonder how he can place it there, the bees being so numerous and comb drawn so near to floorboard that there is very little room for such an arrangement. I feed with the boxes similar to those used in bar-frames, and drawing out a slide to allow the bees to get up. "E. E." goes on to say that a queen excluder is not necessary with the Stewarton, because the depth of cells, &c., have a tendency to deter the queen from going up to super; but I beg to differ, as only this summer I had a 21lb section completely ruined by the queen, she having got up before I noticed her, and had a considerable amount of brood all over the section. Of course, this cold summer probably had something to do with it, but it is not the first time I have heard of the queen leaving the body box to enter the supers.

I never use the queen excluder myself, for it seems to me to hinder the bees getting up to the super, but I usually give a look in to the super once or twice a week to see if the queen is there, and if she is there I get her down again, and possibly may then put on the excluder, but I never do this till compelled. If the same attention were paid to these hives as paid to the bar-frames, I can assure the apiarist that a much more profitable return can be made than with the bar-frames.—STEWARTON.

Trade Catalogues Received.

Gco. Bunyard and Co., Ltd., Maidstone.—*Seeds.*

W. J. Godfrey, Exmouth, Devon.—*Chrysanthemums.*

J. Hill and Son, Barrowfield Nurseries, Lower Edmonton, N.—*Ferns.*

Fred. C. Pomrencke, Hamburgerstrasse, 42-46, Altona, Hamburg.—*Seeds.*

Stuart and Mein, Kelso, Scotland.—*Gardening Guide.*

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible, with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

Principles of Propriety.

On handling "Scot's" letter, page 17, like small boys do the cat, viz., tail end first, I would answer his question, "Why are Scots gardeners preferred to English?" by asking, Are they? He may, of course, have some vague statistical method of proving it to his own satisfaction, but in saying "nine-tenths of the young men in England spend too much time in public-houses and pleasure-seeking," the indictment is sufficiently serious to set one thinking.

As life in bothydom and personal experience of bothies, with those who dwell therein, passes in review before me, I can, and do, conscientiously affirm that to my knowledge, so far as nine-tenths are concerned, my data brings me to the conclusion that one-tenth would include the black sheep, and that 90 per cent. of the young gardeners I have known, and know, have too much honest pride to patronise what savours more of the stables, to which "Scot's" data appears to apply, than to the garden.

However, we can only reason from what we know, and of Scotland I know nothing, never having crossed the Border; but of England and Ireland I claim to know as much as can be crowded into one lifetime—a gardener's lifetime, with experience of all sorts and conditions of bothies and their inmates, Scotch, English, Irish, and Welsh, and although believing that "Scot's" statement is to be accepted as *bonâ fide* so far as his experience is concerned, that experience is unquestionably not only too limited to do justice to the bulk of young British gardeners, but is singularly unjust to them as a body as well.

A gardener's life, even a young gardener's life, is not all beer and skittles, which goes without saying; but it has been a pleasure to me in knowing that not a few bothy lads I have met with in these latter days have been practical if not professed, teetotalers, and whenever the opportunity has occurred, and I have been on sufficiently intimate terms with young fellows to impress the wisdom of abstaining till the bothy is left behind for good and all, this small concession has not been refused. That there is need for thus protecting our young brothers I will not deny, but that "Scot's" large percentage of black sheep in the juvenile gardening fraternity exists is neither admitted nor believed by—AN OLD BOY.

Zonal Pelargoniums.

In many gardens these plants hold a prominent place among the many that are useful for decorative purposes during the winter months. The variety of brilliant colours possessed by them tends to make the houses gay when Nature seems at rest outside.

If large plants are desired and the stock is unlimited, cuttings should be inserted in light sandy soil not later than the last week of September and placed on a slightly shaded shelf to strike. A viinery or Peach house is a suitable construction. From the time the cuttings are struck, and till they are through the dull days of November and December they will appear dormant, during which time marked attention should be bestowed on them, as plants frequently go black in the stem through having an over-supply of water. The new year having opened, it will then be time to pot them off, afterwards placing in a heated pit or greenhouse close to the glass, affording ample air on fine days to ensure sturdy growth.

On the plants commencing to grow, they will require stopping, which should be done at a joint from which a growth inclines to be forcing its way, for when pinched at the base of a flower stalk they have a tendency to possess a quantity of barren growth, caused, no doubt, by careless stopping. So soon as the pots are filled with roots they can then be potted into the final or flowering pots, probably 6in or 8in, and set in a cold frame, or out of doors if the weather permits.

Pelargoniums will succeed in almost any good rich soil, and growers should use their own discretion regarding its composition, experience having taught them what it thrives best in. All flowers that make their appearance must be forthwith picked off and the plants stopped as occasion requires. Houses previously used for Tomatoes or Cucumbers, and kept at a temperature of from 55deg to 60deg are suitable structures for flowering them in; the time of housing depending on the weather.

When the plants are allowed to flower, an occasional watering with weak liquid manure will be found very beneficial to them, but where this is not procurable a little guano will suffice. If one batch of cuttings only can be got, they should be propagated in early spring, after the plants have done flowering.

From my own experience I prefer the autumn struck plants to those struck in the spring, both for quality of plants and blooms.

Appended are the names of a few varieties among the large number now in cultivation:—Snowdrop, Phenna, Hall Caine, Lady Brooke, Mark Twain, Mrs. E. Rawson, Chas. Mason, Ian Maclaren, Duchess of Portland, Zenobia, and Red Eagle.—OXONIAN.

The Weather.

Rainfall in East Perthshire

The year 1903 is the first year we have taken observations of the rainfall here. Our situation is 50ft above sea-level, at the base of the Ochil Hills, about four and a half miles to the south of the City of Perth. The rain-gauge used is that invented by the late Rev. John Fleming, D.D., Professor of Natural Philosophy in the University of Aberdeen. Like other places, the rainfall here has been considerably above the average:—

	Inches.		Inches.
January	4.5	August	5.9
February	4.9	September	2.2
March	5.2	October	6.5
April	0.7	November	1.1
May	1.0	December	1.9
June	1.7		
July	4.1	Total	37.7

Weather in S. Perthshire.

The weather for a few weeks has been very inconstant. A seasonable spell occurred at New Year, when the frost reached 15deg.; this declined till the 7th, when a short period of wet and rather windy weather followed. Up to the 18th inst. there have been alternations of moderate frost and thaw. Snow fell about the 15th over the country, but to no great depth, although all the higher grounds were thickly coated. Monday was a springlike day, with a mild westerly wind and recurring gleams of sunshine.—B. D., S. Perthshire.

At Hamilton N.B.

Very wet weather, high winds ending in snow, prevailed here during last week. Friday was a typical winter day, with its furious blasts of windy snow showers. At present from 2in to 3in of snow lies on the ground, and all outdoor work is at a standstill. Frost has not as yet set in very severe, there being only 7deg. on Saturday morning. Every indication points, however, to at least a few days' frosty weather.

Rain at Crediton, Devon, 1903.

Having read with interest in last week's issue of "our Journal" the various rainfall reports, I thought it would be of interest to readers to know what fell here. As you will note by the enclosed table, the months of October and December were the wettest, and December 9 proves to be the wettest day.—G. LOCK, Head Gardener to B. H. Hill, Esq., Newcombes, Crediton, Devon.

Month.	Total Depth.	Greatest Fall in 24 Hours.		Number of Days on which 0.01 or more fell.
	Inches.	Depth.	Date.	
January ..	... 4.77 ....	.. 1.12 ..	.. 3rd ..	..... 17
February ..	.... 1.96 ....	.. 0.45 ..	.. 24th ..	..... 10
March ..	.... 3.68 ....	.. 0.60 ..	.. 27th ..	..... 16
April .....	.... 2.06 ....	.. 0.67 ..	.. 27th ..	..... 7
May .....	.... 2.56 ....	.. 0.56 ..	.. 3rd ..	..... 9
June .....	.... 2.75 ....	.. 0.75 ..	.. 29th ..	..... 10
July .....	.... 1.93 ....	.. 1.05 ..	.. 28th ..	..... 5
August....	.... 2.50 ....	.. 0.97 ..	.. 24th ..	..... 8
September.	.... 4.22 ....	.. 0.75 ..	.. 18th ..	..... 15
October ..	.... 7.78 ....	.. 1.32 ..	.. 28th ..	..... 26
November .	.... 3.17 ....	.. 0.83 ..	.. 28th ..	..... 13
December..	.... 5.47 ....	.. 2.03 ..	.. 9th ..	..... 14
Total.....	.... 42.85 ....	.. 11.10 ..		150

Summary of the Weather in 1903 at Belvoir Castle.

The prevailing direction of the wind was S.W., total ninety-four days. The total rainfall was 30.76in; this fell on 200 days, and is 3.90in above the average; the greatest daily fall was 2.10in on August 24. Barometer (corrected and reduced): highest reading, 30.668in, on January 14, at 9 a.m.; lowest reading, 28.665in, on March 2, at 9 p.m. Thermometers: highest in the shade, 85deg., on July 10; lowest, 15deg., on January 14; mean of daily maxima, 54.99deg; mean of daily minima, 41.14deg; mean temperature of the year, 48.06deg; lowest on the grass, 12deg., on January 14; highest in the sun, 134deg., on July 2; mean temperature of the earth at 3ft, 48.60deg. Total sunshine, 1,447 hours 10 minutes, which is 54 hours 3 minutes below the average; there were fifty-nine sunless days. The mean temperatures approach very closely to the average; the year's records are chiefly remarkable for excessive rainfall and diminished sunshine.—W. H. DIVERS.



Fruit Forcing.

CUCUMBERS.—As these like light, heat, and moisture, the glass should be kept clean, both inside and outside. Add a little soil over the roots as they protrude through the ridges. Plants in borders of small area, pots, and boxes, should have liquid manure, always tepid, and not too strong or too often. Stopping and thinning the growths will not be much needed, but it must not be neglected, as crowding is the precursor of evil consequences. Red spider and white fly, especially the former, in structures that are badly heated, and thus necessitating sharp firing. Sponging the infested leaves with a solution of paraffin soil emulsion—2oz to a gallon of water, is a sure and, all things considered, the safest remedy for red spider if taken in time. A little flowers of sulphur on the hot water pipes checks and destroys white fly. Mildew must be kept under by dusting with black sulphur.

MIDSEASON VINERIES.—The Vines should be pruned and at rest. If this has yet to be done lose no time in pruning, cleansing the house, dressing the Vines, especially where there have been attacks of red spider and other so-called insect pests. A paraffin oil emulsion is good as a winter dressing. 1½lb of softsoap dissolved in a gallon of soft water by boiling, and when dissolved removed from the fire in a boiling state, adding half a pint of paraffin oil and stir briskly until thoroughly amalgamated, makes a good wash. Now dilute to 5gals for use, which is at the rate of a wineglassful of paraffin oil to a gallon of water, and 4ozs of softsoap, quite strong enough, yet safe. Remove the surface soil from the border, and supply a top-dressing of fresh compost. Where the Grapes are partially cut the remainder may be removed with a good portion of wood attached, and if the stems are inserted in bottles of water the bunches will keep admirably in a dry room from which frost is excluded. Thus the Vines will be liberated for pruning, and the house for cleansing, repairs, and painting. A long and complete rest invigorates the Vines, and early pruning effects that better than anything else.

CHERRY HOUSE.—Of all fruit trees the Cherry and Apricot are most impatient of a close, stagnant atmosphere; therefore the Cherry house, and also the Apricot and Plum houses, if any are forced as are much to be desired, should be ventilated early in the morning, a "crack" of air being left on constantly at the top of the structure, and the amount of ventilation be increased with the advancing day. Maintain a night temperature of 40deg, no more, by artificial means in severe weather, 45deg by day when dull and cold, 50deg on mild or sunny days, ventilating at 50deg and allowing an advance to 60deg or 65deg from sun heat with full ventilation, closing at 50deg. Syringe the house and trees in the morning and afternoon when the weather is bright, damping occasionally in dull periods. Trees in pots must have the necessary care in watering.

MELONS.—Plants raised early in the month are in the second leaf and root action proceeding rapidly; therefore attend to earthing, and where the small pots are occupied with roots, either turn the plants into the fruiting bed or transfer to the next larger size pot, for stunted, rootbound plants never do any good. Plunge in bottom heat near the glass, a temperature of 75deg to 80deg being sufficient, placing a stick to each plant for its support till reaching the trellis. Plants for pits and frames can be stopped at the second rough leaf.

SOIL FOR MELONS.—Heavy loam suits Melons, the top three inches of a pasture cut and stacked in the autumn, chopped up moderately small, being the most suitable. An addition of well decayed manure can be made as desired, also of lime rubbish and road scrapings, when there is a deficiency of calcareous matter or grit. If there be a suspicion of eelworm sealed with boiling water, or heat the compost to a temperature of 180deg by steam or placing on a hot iron plate over an improvised furnace formed of loose bricks outdoors. This procedure kills eelworms and all other pests, animal or vegetable, that feed on the Melons, either at the roots or on tops. I have found these simple precautions very satisfactory, not only for Melons, but also for Cucumbers and Tomatoes.

PEACHES AND NECTARINES.—EARLIEST FORCED TREES.—The fertilisation of the blossoms must be attended to as the pollen becomes ripe, distributing it over the stigmas, which is more effectual than shaking the trellis. Syringing may be resorted to both morning and afternoon when the fruit is well set, but in dull weather damping will be sufficient, and in cold weather syringe sufficiently early to allow the foliage to become

dry some time before nightfall. This is important, for keeping the trees constantly dripping with water encourages soft growth, is inimical to the leaves and swelling of the fruit, besides inducing gumming and other ills. Water used for syringing must be of the same temperature as the house. Ascertain the condition of inside borders, and where necessary afford a proper supply of water. Disbud very carefully at this early season, removing a few growths daily from a tree, preferably to many at distant intervals. The latter practice gives a check to the roots, and promotes wood growth at the expense of the fruit, which for lack of assimilated matter often falls at this juncture in consequence of congestion of the sap. Maintain a night temperature of 55deg, 60deg on mild nights, 60deg to 65deg by day, 5deg less on those figures when the weather is severe and dull. Ventilate early, admitting a little air at 65deg, not allowing an advance over 70deg without full ventilation, closing at 65deg, always excepting a small space at the top of the house left constantly, this preventing a vitiated atmosphere, and secures a healthy condition in the leaves, which enables them to do better and more work in the daytime.

SECOND EARLY HOUSES.—Trees started at the beginning of the new year are expanding their flowers, and before they open it is well to make a close scrutiny of the trees, and if any aphides are found fumigate to exterminate the pests. Great care is necessary in fumigating, as the organs of fructification are easily and irreparably injured. Moderate fumigation or vaporisation on two or three consecutive evenings will be sufficient for keeping these insects in check until the fruit is set. Where there is an excess of blossom buds draw the hand the contrary way of the growths along the under side of the trellis or its back, so as to remove those there situated, thinning elsewhere with the fingers, leaving the best situated. Syringing must cease when the buds show colour, but damp the house in the morning and early afternoon, always avoiding a stagnant atmosphere. See that inside borders are thoroughly moistened through to the drainage, but avoid needless waterings.

SUCCESSION AND LATE HOUSES.—Finish pruning the trees at once, dressing them with an approved insecticide, many excellent kinds being advertised, and secure the trees to the trellis, always allowing ample space for the swelling of the branches, and leave room between them for laying in young wood for future bearing. Fork the border lightly, not disturbing the roots, and after removing the loose soil supply fresh in its place, and dress with a sustaining fertiliser, such as the following mixture: Dissolved bones dry and crumbling, three parts; double sulphate of potash and magnesia (refined kainit), two parts; and air-slaked best chalk lime, one part; mixed, using 4oz per square yard, and scratched in lightly with a fork. If the borders are at all dry they should be given a thorough supply of water. Ventilate to the fullest extent, except when frost prevails; even then frost will not do any harm until the buds show colour. Houses with the roof lights off need not have them replaced until starting time, or to insure safety for the blossoms.—G. A., St. Albans, Herts.

The Flower Garden.

PRUNING DECIDUOUS TREES AND SHRUBS.—In a mixed collection of trees and shrubs there are, of course, some which need considerable pruning back, while others need little or none. Under ordinary circumstances where growth has ample room for free extension, Lime, Birch, Beech, Oak, Poplar, Chestnut, Almond, Thorn ought not to have the branches pruned back. Thinning and clearing away encroaching lower branches will in most cases suffice. Elders will require close pruning back annually in situations where they have a limited space, but where there is room allow moderate extension. Clear out old wood from Dentzias, Weigelas, Philadelphus or Mock Orange, and regulate the young, pruning back to ripe wood.

PRUNING EVERGREENS.—Overgrown and unshapely specimens of evergreen shrubs may with great advantage be pruned into a better shape. Laurels, Aucubas, Euonymuses, Berberis aquifolium, Ligustrum ovalifolium can be cut back freely, but it is better to use a knife or scateurs, manipulating each shoot or branch separately, than to prune with shears which cut the leaves. Rhododendrons ought not to be pruned now, but after flowering. Many dwarf shrubs seldom need pruning, such as Veronicas, Skimmias, Box, hardy Heaths, Lavender, Rosemary, Laurustinus, and Conifers of various sorts.

PROTECTING TEA ROSES.—In the event of very hard frost setting in it will be necessary to afford some extra protection to Tea Roses. Dwarf Roses may be readily protected by earthing up the soil round the base of the plants, or importing some dry ashes or soil round them. Standard Tea Roses may be protected by placing some dry bracken among the shoots of the head, giving a few ties to keep the material in position. Recently planted Roses ought to have long, dry litter laid about them as a mulch. Wet or rotted manure is not so suitable.

HARDY PERENNIALS.—It is not quite the best season to disturb the majority of perennials, but it may be convenient to

lift, divide, and replant the following: German Irises, Heleniums, perennial Helianthus, Sedum spectabile, Michaelmas Daisies, Chrysanthemum maximum, Helleborus niger, Hemerocallis, Polygonum cuspidatum, Pyrethrum uliginosum, Periwinkle (Vinea), and St. John's Wort. The healthiest portion of the various clumps should be selected for replanting, whether these are found to be the outside pieces or the centres. Good cultivation of the ground is essential, adding a liberal admixture of fresh soil mixed with leaf soil and manure.

PLANTS IN FRAMES.—Rooted cuttings in frames, such as Caleolarias, Violas, Pansies, hardy Chrysanthemums, will require now more air admitting; indeed, the frame lights may be tilted and left so, except when frost prevails. Echeverias wintering in cold but sheltered frames need abundance of air on favourable occasions, and must be kept dry. Violets in frames will begin to show signs of increased vigour in growth and flowering. Ventilate when possible, and remove yellow or withered leaves. Should the roots require moisture apply weak stimulants in the morning of a prospective fine day, and allow abundance of air to circulate about the plants in order to dry up superfluous moisture.—E. D. S., Gravesend.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

POTATOES (W. Scott).—We observed the cutting you send from our esteemed agricultural contemporary, and since you have again brought it under notice, we will make use of it.

MANURE FOR MIXING WITH SOIL FOR GERANIUMS (J. M. W.).—As the soil from the Tomato boxes and Chrysanthemum pots will be rich and contain a considerable amount of organic matter in the form of dead roots, we should say that it would suffice to mix with the compost basic cinder phosphate of the finest quality, or guaranteed to pass through a sieve which possesses 10,000 holes to the square inch, 100lb of which contain about 17lb of phosphoric acid, 50lb of lime, 6½lb of magnesia, and 10lb of iron. About 80lb of basic slag is the proper quantity to use per cartload of soil, or 1lb to 28lb of the compost. This should be broken up well and the basic slag sprinkled on, afterwards turning once or twice so as to assure the thorough mixing of the basic cinder phosphate through the heap. The only other component in which the soil is likely to be deficient is potash, and this would be best supplied in the form of sulphate of potash, say one-fourth of the amount of basic cinder phosphate, adding to and mixing with the soil at the same time as the basic slag.

APPLYING LIME TO TOMATO BORDERS.—TOMATO CROPS.—FUMIGATING WITH HYDROCYANIC ACID GAS (R. L.).—Instead of using slaked lime we should apply a dressing of a mixture of eight parts basic cinder phosphate and three parts best quality kainit, at the rate of 1lb of the mixture per square yard, and fork into the soil, taking small spits so as to mix as evenly with the soil as possible to a depth of about 9in or 10in. After leaving a time and before planting the Tomato plants, fork over again, and if this leaves the soil too loose it may be consolidated by treading. This would supply phosphoric acid, lime, potash, and magnesia, also iron, and act well by the free lime in the basic slag, or the organic matter, as well as being prejudicial to eelworms and sleeping disease germs. If you use lime we should not apply more than 1lb per square yard, slaking with the smallest quantity of water necessary to cause fall into an apparently dry powder, spreading evenly and digging in, mixing as evenly as possible with the soil. You do not give the number of plants in each house, and do not say whether one or two crops are taken during the season. In either case the crop is enormous, and quite equal to any produced in the south of England, and that quite exceptionally. The treatment of the houses with hydrocyanic acid for white fly is very interesting, and as you say successfully operative on the pests at so trifling a cost. Could you oblige us with particulars of the safe using of the gas?

LAVENDER FOR HEDGES (M. C.).—We are not acquainted with a Lavender that attains to a height of 4ft. The species *L. Stæchas* grows to a height of from 2ft to 3ft, and is a handsome, hardy shrub, having a strong aromatic, agreeable flavour. It, however, is not commonly cultivated; indeed, not in any nurseryman's list of shrubs. Besides, we do not consider it would be better than the broad-leaved variety of the common Lavender (*Lavandula spica* or *vera*).

VARIETIES OF BUSH APPLES (Working Gardener).—Twelve dessert varieties:—Mr. Gladstone, August, compact grower; Irish Peach, late August, medium grower, bears on the tips of the shoots; Lady Sudeley, August and September, medium grower; Devonshire Quarrenden, August and September, medium grower; Worcester Pearmain, September, free upright grower; King of the Pippins, October and November, compact grower; Cox's Orange Pippin, October to January, medium grower; Scarlet Nonpareil, December and January, medium grower; Cockle's Pippin, January to March, free grower; Braddick's Nonpareil, January to March; Brownlee's Russet, March to May, medium grower; Court Pendû Plat, February and March, compact grower. Twelve cooking varieties:—White Transparent, August, compact grower; Lord Grosvenor, September, strong, sturdy grower; Seaton House, October and November, compact grower; Golden Spire, November, compact upright grower; New Hawthornden, November, medium spreading grower; Small's Admirable, November and December, compact grower; Hornead Pearmain, November to January, medium grower; Bismarck, December and January, medium grower; Bramley's Seedling, December to March, strong grower; Lane's Prince Albert, January and February, compact pendulous grower; Newton Wonder, February and March, free grower; New Northern Greening, November to May, medium grower. The trees should be on the English Paradise stock.

NAMES OF PLANTS.—*Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number.* (A. M.).—1, *Pinus pungens*, Michx.; 2, *P. ponderosa*, Dougl.; 3, *Picea sitchensis*, Tranto. and Medg.; 4, *P. ajornensis*, Fisch.; 5, *Abies pectinata*, D.C.; 6, *Tsuga pattoniana*, Engelm. (H. J. P.).—1, *Lælia anceps*; 2, *Alocasia Sanderiana*. (L. A. F.).—The Strawberry Tree, *Arbutus Unedo*.

Covent Garden Market.—January 20th.

Average Wholesale Prices.—Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Jerusalem, sieve...	1	3 to 1	Onions, per case ...	5	0 to 5
Asparagus, Sprue, bundle	0	10	„ per bag ...	4	0
„ Paris Green...	4	6	„ picklers, sieve	3	0
Beans, dwarf, per lb...	1	6	„ English, cwt.	5	0
„ Madcira, basket...	1	6	Parsley, doz. bnchs.	1	6
Beetroots, per bushel...	1	6	„ sieve...	0	6
Brussels Sprouts, sieve	1	6	Parsnips, per bag	2	0
Cabbages, tally ...	4	0	Potatoes, per ton...	70	0
Carrots, doz. bun.	2	0	„ New Tencriffe,		
„ per bag ...	2	6	per cwt.	12	0
Cauliflowers, doz.	1	6	Radishes, doz. bun.	0	9
Celery, per doz. bun.	9	0	Rhubarb, per doz.	1	6
Cress, per doz. pun.	0	9	Salad, small, pun., doz.	0	6
Cucumbers doz.	8	0	Seakale, per doz...	15	0
Endive, per doz.	1	6	Shallots, per lb.	0	1½
Garlic, per lb.	0	2	Spinach, per bush.	3	0
Horseradish, foreign,			Tomatoes, English, doz lb	4	0
per bun.	1	3	„ Canary Deepes, lb.	2	0
Leeks, per doz. bun.	1	0	Turnips, doz. bun.	1	6
Lettuces, Cabbage, doz.	1	0	„ per bag ...	2	0
Mushrooms, house, lb.	0	9	Watercress, per dozen		
			bunches	0	4

Average Wholesale Prices.—Plants in Pots

Most of the undermentioned plants are sold in 48 and 32-sized pots

	s. d.	s. d.		s. d.	s. d.
Adiantums, per doz.	4	0 to 8	Ferns in var., per. doz.	4	0 to 30
Aralias, per doz.	4	0	Ficus elastica, doz.	9	0
Arbor Vitæ, per doz.	9	0	Genistas, doz.	10	0
Aspidistras, per doz.	18	0	Hyacinths, Roman (48-		
Aucubas, per doz.	4	0	pots), doz.	8	0
Azaleas, each...	2	6	Lycopodiums, per doz.	3	0
Begonia, per doz...	8	0	Marguerites, white „	4	0
„ Gloire de Lor-			Orange Trees, each	3	6
raine, per doz.	8	0	Palms, var., each	3	0
Callas, per doz.	12	0	Poinsettias, per doz...	8	0
Chrysanthemum, doz.	6	0	Primulas, per doz.	4	0
Coleuses, per doz.	4	0	Pteristremula, per doz.	4	0
Crotons, per doz.	12	0	„ Wimsetti „	4	0
Cyclamens, per doz.	10	0	„ major „	4	0
Cyperus, per doz...	3	0	Solanums „	6	0
Daffodils, per doz.	7	6	Spiræas, doz.	6	0
Dracænas, var., doz.	12	0	Tulips, red, doz. roots.	1	0
Erieas, per doz.	8	0	„ yellow, doz. roots.	1	6
Euonymus, vars., doz.	4	0			

Average Wholesale Prices.—Fruit.

	s. d.	s. d.		s. d.	s. d.
American Limes, 400-			Grapes, Muscats, A., lb.	4	0 to 8
500 in case ...	7	0 to 9	„ „ B., lb.	2	0
Apples, American, brl.	14	0	„ Canon Hall, A., lb.	2	0
„ Californian, case	7	6	„ Gros Colman, A., lb.	1	6
Bananas, bunch ...	8	0	Lemons, per case...	12	0
Chestnuts, bag ...	17	0	Lychees, box...	1	2
Cobnuts, per lb.	0	7½	Oranges, per case...	5	0
Cranberries, per case	10	6	Pears, per case ...	6	6
Figs, per box ...	0	10	„ stewing, ½-sieve	4	6
Grapes, Alicante, lb.	1	0	Pines, each ...	2	0
„ in barrel...	12	0			

Average Wholesale Prices.—Ferns, Foliage, Moss.

	s. d.	s. d.		s. d.	s. d.
Asparagus, long, bnch.	2	0 to 2	Ivy leaves, doz. bun...	1	6 to 0
„ medium, bunch ...	1	3	Myrtle, large French,		
„ short, per doz. bun.	6	0	per doz. bun. ...	1	0
„ Sprengeri, dz. bun.	9	0	„ small English, per		
Smilax, long, doz. trails	1	0	doz. bun....	6	0
Maidenhair, best, per			Moss, natural green, per		
doz. bnchs.	0	0	gross bun. ...	6	0
Berberis, per doz. bun.	0	0	„ Lichen, full size		
Croton foliage, various,			boxes, per box ...	1	0
per doz. bun....	9	0			

Average Wholesale Prices.—Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Azaleas, doz. ...	4	0 to 6	Mimosa (Acacia), per		
Bouvardias, per bun...	0	4	bun. ...	1	0 to 1
Callas, per dozen.	5	0	Mistletoe, bunch ...	0	6
Camellias, box ...	2	0	Narcissus, doz. bun.	3	0
Carnations, per doz.	1	6	„ Soleil d'Or, per doz.	5	0
Chrysanthemums—			Oreids—		
doz. bunches ...	6	0	„ Odontoglossums,,	2	6
Daffodils, bunch ...	0	9	„ Cypripedium in-		
Eucharis, per. doz.	3	0	signe, per doz.	3	0
Ferns—Asparagus, bun.	1	0	Pelargoniums, zonal,		
French, doz. bunches	0	4	doz. bun....	6	0
Maidenhair, doz. bun.	4	0	Poinsettias, bun....	0	10
Freesia, per doz.	1	6	Roman Hyacinths, per		
Gardenias, box of 18-24			bunch ...	0	6
blossoms ...	2	6	Roses, Mermet, per doz.	3	0
Lilac (French), bun.	3	6	„ Various, per bun.	0	6
Lilium longiflorum, bun.	4	0	„ White „	1	6
„ lancifolium „	1	6	„ Pink „	1	0
„ auratum „	1	0	Smilax, per doz. trails	1	0
Lily of the Valley, per			Stephanotis, per doz...	1	6
doz. bun.	6	0	Tuberoses, strong, bun.	1	0
Marguerites, yellow,			doz.	0	2
per doz. bun.	1	0	Violets, per doz. bun...	1	0
Mignonette, per doz.	3	0	„ Parma, per bun.	2	6



A Good Departure.

We like public-spirited men, and only wish there were more of them. "Much" always wants "more," and we think it is essentially a feature of English rural life that there are so many great men who are so willing and so active in their plans for the well-being of those who immediately are connected with them, and who also take a wider sweep and extend their benefits to outsiders.

In those far-off days when a landed property was a good investment and the many-acred squire a money-man, it was fitting that he should take upon himself responsibilities and duties that now, under altered conditions, have become burdens hardly to be borne. With the centralisation of county affairs comes a call for men of business aptitude and men who are thoroughly conversant with the various districts and their various needs. It is no small undertaking to attend council meetings week after week at the county town, which may be, and possibly is, far distant from the homes of many of the members. The work, too, is no sinecure. In the expenditure of public moneys it is impossible to be too careful; by this we mean, not undue

niggardliness, but the careful adjustment of the many claims each of which appears very urgent. There are in every district men who appear to have such a grasp of matters financial that they stand head and shoulders above their fellows. These men are in request on every committee, and they work harder for the love of the thing than many a highly-paid clerk or accountant. We do think at this present time, from our own observation, that the landed gentleman is doing his fair share of public work and a little bit to spare!

Take the present educational crisis, and it will be found on analysis that on the shoulders of the squirearchy the heaviest burden of adjustment lies. Next to this class will come the large influential farmers, who many of them own land as well as being tenant farmers. These men's time one would think was fully filled up with their own work; yet they cheerfully put aside their own duties, and bring their clear brains and business-like methods to help guide the councils and deliberations of the district assemblies. We rather gasp at times when we note how all these new schemes for improvement are adding burdens to the rates, but, at the same time, as long as the men we have indicated are in charge they will do their level best to check monetary rashness.

But there is another way in which landholders do much to benefit tenants and neighbours. We name no names, as they will occur at once to the reader. We refer to those enterprising souls who have started and encouraged estate or village shows. Now, these strike us as being far more useful than the large public affairs. The stock is bona fide the property of tenant farmers, who are quite distinct from that class that large shows have created—namely, the pot hunter, the men whose business it is to go from show to show with flash animals that sweep the board of all valuable prizes. By flash animals we refer to the hunter who never knows what it is to get a good bucketting over plough; the Shire mare who more often slips her foal than rears one; the grand Shorthorn who, if she drops a good calf, cannot find milk to sustain it; and so down the list. In cases where a noble owner has his tenants show he at the same time encourages and fosters the desire for really good stock by either giving outright or at a nominal cost the services of a sire the best of his type. A little encouragement of this kind will go far to establish beyond any doubt some first-class stock on the estate or in the neighbourhood. In this distribution of good chances the cottager tenant is not left out in the cold.

We have just come across the account of another scheme for the benefit of farmers which seems to us to have some most excellent features. The results ought to be and will be even more lasting than any building up of good stock.

It is a scheme for the building up of the educational value of the young farmer. It is a scheme to fill some of their leisure hours after they leave school. In fact, it might be termed very properly a course of technical instruction. Perhaps a few notes as to this scheme, its founder and its participants, may not be unwelcome to the readers of the Journal.

On the estate of Lord Fitzhardinge of Berkeley is an agricultural society connected with the Hunt, and for five years his Lordship has offered prizes to members, their sons, or employés of members under the age of twenty-five and residing within the limits of the Berkeley Hunt, for proficiency in general agricultural knowledge. There is an oral as well as a written examination, and two days are occupied in the tests. The written examination comes first, and is taken at the Estate Office. There is no mistake about the work, for one examiner is Professor Blundell, of Cirencester, and he is an adept at gauging a young man's knowledge. The other examiner is Mr. George Taylor, and he must have tried nerves and knowledge pretty thoroughly. On the second day Professor Blundell puts the aspirants through a sharp vivâ voce examination, and then Mr. Taylor begins his work: a strong form of object lesson it might be called.

A shorthorn cow and calf are put before the students; they determine the value and milking capabilities. Then comes a heifer for their adjudication. A steer follows, whose weight must be carefully assessed. Then a pen of lambs, whose weight and value had to be arrived at. Then a pen of fat sheep, and some of the youths were very close on the mark. The merits and demerits of a pair of farm horses and the reasons from which they deduced their conclusions. Then come practical work—hedge making and thatching,

both arts that appear to be on the wane in some parts of the country. These young men have to study by themselves—that is, there is no technical college available; we are not quite sure whether the results may not be better worth having. It is always the thing puzzled out by sheer hard work that stays the longest in the mind. It is quite possible to have too many helps. We have a great respect for teachers and books, but we think Nature and books and common sense make a very fine trio.

Lord Fitzhardinge is going to set up a library at Berkeley for these young men, and Sir Thos. Elliott, who is permanent secretary to the Board of Agriculture at Whitehall, has promised a complete set of the Board's publications. This is a fine nucleus; in fact, we do not really think any addition will hardly be necessary.

And this brings us to another point. In most villages there are reading-rooms of some sort. We don't all aspire to a Carnegie library. Now, taking these reading rooms as a whole, they are most sparsely supplied with literature of the style above referred to. Might it not be a kind as well as a wise thing if members of the "Royal" or kindred societies would pass on the agricultural books that come to them during the course of the year?

We know many houses where there are shelves and shelves again of all the newest and best of agricultural literature, and attractive literature, too. Surely some arrangement might be arrived at so that these books could be engaged by the many as well as by the select few. We don't like thumb marks, but we would rather see volumes so illustrated than see the stately rows that are rarely if ever touched save by the housemaid's duster. An enterprising young farmer, if he could be at the trouble, would see to it that all the profitable little leaflets that emanate from Whitehall should be placed on the reading-room table.

It is a fact that these useful little intelligences are not half so well-known as they should be. Suppose Sir Thos. Elliott asks for lists of country secretaries who would wish to be put among those to whom these papers are posted as they are published. We think this might be a step in the right direction, and we feel sure young farmers would profit more from reading such papers, which are compiled by experts, than they will do from the perusal of the poor, ephemeral weeklies and dailies.

Work on the Home Farm.

We have again had a heavy rain, and the fallows which are required for swedes are as wet as ever they were—at least, the surface is as sticky as can be. We saw a spring cultivator crossing fallows the other day, and we think the example a sensible one to follow. These cultivators lift the soil, leaving it very loose, and there is no fear that they would leave it in too finely prepared a condition so as to be in danger of running together with further rain. The soil would be left open to the influence of the frost, of which we are still in such great need.

We are by no means short of work, and can conveniently postpone any further ploughing. Carting manure out over bad roads makes plenty of work for the horses. Then there is a very regular supply of swedes to cart to the yards for the cattle. We have had a truck of coals to get in and a quantity of Potatoes to put on rails. It would be very convenient to get more of this work out of the way before February, when the land may be more workable. Therefore we continue to get the manure out under unsuitable conditions. The first week of February usually sees the commencement of drilling on heavy soils. There can be very little strong land fit to drill before March this year.

We have got some big hedges cut off, and, where necessary, protected by beards of thorns. In one case adjoining a feeding pasture we have made the beard very strong, and before stocking time shall put a few tall stakes in it and strain upon them one strand of barbed wire to keep the cattle from pushing over it.

We have begun to feel the depression in the beef trade; whether it is owing to bad trade in the towns or overselling by farmers we cannot say, but we doubt whether the home supplies can be kept up to their present level. We know that many farmers have sold out cattle which they would in the ordinary course have fed on until April. Rents came due and corn was unsaleable, so they had to sell the beasts.

The sheep trade holds its own, and the cross-bred hogs must be pushed on now so that they shall all be ready for sale before March. Sheep which are not worth clipping should go before clip day.

Hens are beginning to lay better. The price of eggs is ten for one shilling.

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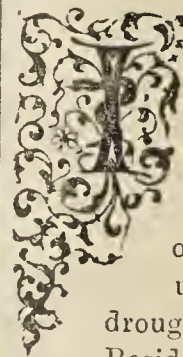
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THURSDAY, JANUARY 28, 1904.

The Weather of 1903.

IN spite of the disastrous character of the past year in respect to its weather, the opening months proved, upon the whole, fairly favourable, the heavy downpours of January and March being not unwelcome after the continuous drought of the preceding two years. Besides, February, although concluding with an exceedingly wild and boisterous week, proved otherwise a fine, mild month, enabling agriculturists to get through much necessary winter work under most favourable conditions.

From the end of March onward, however, with the exception of a few weeks of ideal haymaking weather at the end of June and commencement of July, a fine period following the great storm of the second week of September, and a fair November, not a good word can truthfully be said of the season.

Doubtless the foundation of the year's failure lay in the remarkably wintry weather of April. This, following as it did a long period of exceptionally warm weather, which had started vegetation into an unduly early growth, did irreparable damage to many crops. Still, except in the case of the fruit grower, whose hopes from that time were quite extinguished, a due proportion of sunshine and warmth in the ensuing months might still have saved the situation.

This was not to be, however. The scanty sunshine and heavy rains of May, the unprecedented cold combined with great rainfalls during the middle portion of June, the continuous downpours of the last half of July and the whole of August and October, and the terrible winds of the second week of September, furnishing such an unusual combination of adverse conditions, that the season could not be otherwise than of a very disastrous character.

Taking the months in detail, January opened

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and closed with very mild, wet weather, but sandwiched between this was a week of cloudless skies and very severe frost. The two following months proved remarkably mild throughout, with a good deal of rain during the last five weeks of the period. Then followed a disastrously cold April and a wet and sunless May. June, after commencing fairly, brought perhaps the most remarkable weather of the year, in a very wet and cold period, lasting from the 8th to the 19th. Following this came the only summer weather of the season, just in time for the haymakers. This lasted with a somewhat lower temperature until the middle of July, when rainfalls again became general and heavy; this unpleasant type of weather continuing throughout August and well into September.

Then, however, a great cyclonic storm, which passed directly across our islands on the 11th, apparently cleared the air somewhat, for the last fortnight of that month showed a decided improvement in every way. With October rainfall again set in, this month being the wettest, taking our islands as a whole, for many years past. November brought a return to fairly dry conditions, accompanied by mild weather, which, with the exception of a break at the meeting of the months, continued onward to Christmastide. Then an easterly current of wind brought a decided diminution of temperature, and sharp frosty weather distinguished the closing days of a dark and disastrous year.

To a greater or less extent thunderstorms were reported from various districts during every month of the year, April and December being the only months fairly free. Taking the time of year into consideration, the most noteworthy storms took place over the southern and central districts of England on January 3rd, being accompanied by remarkable falls of hail.

Snowstorms were very little in evidence during the year. The principal falls took place over the Shetlands on February 13th, over our northern and eastern districts throughout the third week of April, and over Scotland and the northern parts of England during the last few days of November. Aurora was observed at Malin Head on February 24th, over the north of Scotland on October 13th, and at Sumburgh Head on November 20th. A very unusual phenomenon during the year was the occurrence of a violent magnetic storm over Western Europe on October 31st.

Gales were chiefly prevalent during the first three months, and again from August to the close of the year; cyclonic storms of very exceptional violence affecting our islands on February 26th and 27th, and again on September 11th. In the latter case the destructive force of the wind was chiefly confined to our southern and south-western districts; but in the former, practically the whole of our islands felt the storm.

Although in a short article of this description it is impossible to give an exhaustive account of the rainfall of the year, its general distribution over our islands will be easily gathered from the following table, which gives the monthly and yearly falls, and the differences of the latter from the average at nine carefully selected stations:—

1903.	Aberdeen	Leith	Liverpool	Valencia	Seilly	Jersey	Bristol	Oxford	London
	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.
January ...	4.26	4.04	1.99	8.25	4.67	3.04	4.29	2.58	2.35
February ...	2.39	3.76	1.60	5.41	1.69	2.40	2.01	0.79	1.13
March	1.62	3.25	2.99	9.16	3.93	2.90	4.44	3.03	1.98
April	2.07	0.92	1.69	2.32	1.24	1.94	3.30	2.28	2.02
May	2.23	1.06	2.51	3.07	1.46	2.65	3.38	4.38	3.24
June	1.64	1.42	1.92	3.29	1.24	3.06	3.74	5.58	6.17
July	5.03	3.75	2.34	4.51	3.44	2.56	1.75	3.47	5.20
August ...	4.18	3.59	3.37	7.75	4.91	3.97	4.39	3.34	4.62
September	2.95	1.87	4.32	6.95	2.69	3.22	3.33	1.54	2.52
October ...	4.47	5.08	7.27	7.78	6.89	6.32	8.03	6.41	5.32
November	2.94	1.30	2.77	4.22	2.54	3.18	1.91	1.47	2.09
December	2.53	0.90	1.99	5.15	5.16	2.91	3.13	0.97	1.31
Total fall..	36.31	30.94	34.86	67.46	39.86	38.15	43.70	35.84	37.95
Averages ..	30.84	23.35	28.93	55.80	33.99	34.18	34.86	25.72	24.84
Departures from	+5.47	+7.59	+5.93	+11.66	+5.87	+3.97	+8.84	+10.12	+13.11
Average									

So far as the totals reported from these stations show, therefore, the rainfall was excessive over the whole of our islands; the departure from normal being greatest over the metropolitan and midland districts. Of the individual months the last two alone show a generally deficient fall. On the other hand, January, March, August, and October contributed very excessive amounts almost everywhere. In the metropolitan district a remarkable and unprecedented feature of the year was the large number of great individual rains occurring during the summer months; no less than seven instances of an inch or more of rain within twenty-four hours being registered from June to September.

Mean atmospheric pressure for the twelve months shows a general deficiency; a decided contrast to the two preceding years of the century, which each gave excesses in all districts. The monthly means and those for the year at the stations for which the rainfall values have been given are as follows:

1903.	Aberdeen	Leith	Liverpool	Valencia	Seilly	Jersey	Bristol	Oxford	London
	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.	ins.
Jan. ...	29.732	29.740	29.871	29.772	29.887	30.046	29.990	29.982	29.992
Feb. ...	29.710	29.766	29.990	29.665	30.117	30.256	30.145	30.128	30.133
March ...	29.501	29.518	29.685	29.665	29.794	29.966	29.791	29.824	29.847
April..	29.810	29.833	29.895	29.946	29.931	29.966	29.939	29.921	29.895
May ...	29.884	29.874	29.873	29.857	29.843	29.895	29.894	29.899	29.887
June ..	30.099	30.091	30.073	30.057	30.005	30.011	30.055	30.053	30.031
July ...	29.841	29.850	29.916	29.922	29.953	30.012	29.971	29.956	29.947
Aug....	29.641	29.669	29.751	29.812	29.885	29.965	29.870	29.859	29.856
Sept. ...	29.978	29.960	29.995	29.872	29.965	30.049	30.027	30.039	30.028
Oct. ...	29.449	29.444	29.550	29.511	29.624	29.760	29.645	29.648	29.665
Nov....	29.867	29.911	30.029	30.117	30.111	30.131	30.104	30.084	30.063
Dec. ...	29.686	29.665	29.703	29.618	29.645	29.731	29.740	29.749	29.745
Means.	29.766	29.777	29.861	29.843	29.897	29.892	29.931	29.928	29.924
Av. mean.	29.836	29.856	29.914	29.919	29.947	29.977	?	29.955	29.957
Dep. from av.	-0.070	-0.079	-0.053	-0.076	-0.050	-0.085	?	-0.027	-0.073

These figures show a general excess of pressure for June and November, and a deficiency in January, March, May, July, August, October, and December. Of the remaining months February and April gave excesses over the southern district, but deficiencies in the north; and September excesses everywhere except in the west. The greatest pressure reported at 8 a.m. over our islands during the year was 30.67in at Portland Bill and Dungeness, on February 10th and 17th respectively; and the least 28.58in at Sumburgh Head on February 23rd, and again at Blacksod Point on March 2nd—an extreme range of 2.09in.

The general character of the year would naturally lead to the impression that the temperature would be deficient. Instead of this, however, except in the extreme north and west, the twelve months show a substantial excess of warmth over our islands. In the third table given, the mean for each month, and also for the year, at nine stations distributed over our islands will be seen:—

1903.	Aberdeen	Leith	Liverpool	Valencia	Seilly	Jersey	Bristol	Oxford	London
	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.
January.....	38.0	38.0	39.7	44.3	46.3	44.7	40.5	40.0	40.9
February ...	41.7	44.1	44.8	46.9	48.1	46.2	45.0	45.1	45.2
March	41.5	43.3	44.8	45.3	47.6	48.1	46.2	45.7	46.6
April	40.7	44.0	43.7	46.7	47.4	47.4	44.9	44.1	45.0
May	48.0	49.5	51.3	51.3	53.2	55.2	53.1	53.0	54.7
June	51.3	55.5	55.1	56.6	55.6	56.5	55.6	55.7	56.9
July	54.6	58.4	58.3	58.8	61.3	62.4	60.4	61.0	62.6
August	53.8	57.4	57.6	57.2	60.1	61.4	58.9	58.7	60.5
September.	51.6	55.0	55.1	56.6	57.8	59.9	56.9	56.8	58.8
October.....	47.5	49.8	50.5	51.4	54.7	56.2	52.8	52.1	53.0
November..	40.4	43.7	44.5	47.5	50.1	49.8	44.5	43.8	44.9
December..	37.3	37.8	38.8	43.1	46.0	42.5	39.3	38.6	39.0
Means	45.5	48.0	48.7	50.5	52.4	52.5	49.8	49.55	50.7
Av. mean...	46.2	47.7	48.8	51.0	52.1	51.9	49.2	48.8	49.9
Departures from average.	-0.7	+0.3	-0.1	-0.5	+0.3	+0.6	+0.6	+0.75	+0.8

These means are those of the maximum and minimum readings, and are not corrected for diurnal range. Of the various months, January, February, March, and October were warmer than usual, the excess of temperature for the latter three months being very great in nearly all districts. On the other hand, June and July showed deficient, and April and August very deficient temperatures almost everywhere. The remaining months, taking our islands as a whole, did not differ much from normal. The maximum temperature reported over our islands during the year was 85deg at London, on July 10th and 11th, and the minimum 12deg at Newton-Reigny, on January 14th—an extreme range of 73°.—H. H. HARDING, F.R.Met.Soc., Bristol, Jan. 13, 1904.

Gardeners in Distress.

At the annual general meeting of the Gardeners' Royal Benevolent Institution held at the Covent Garden Hotel, London, on Thursday afternoon of last week, it was stated that out of at least 10,000 gardeners in the United Kingdom, not 1,000 subscribed to the funds of this charity. That is a reflection upon gardeners. It will come as a surprise to those who are wont to talk of the fraternal co-operation that exists in the ranks of professional gardeners. Whenever one hears loud pæans about the freemasonry and homogeneity that is supposed to unite gardeners to one another everywhere, do not let us forget to tone the pæan with that fact—"Not 1,000 out of 10,000 subscribe."

What the causes of this lack of interest are, we do not completely know. This we believe, that if the auxiliary branches of the Institution were established in different sections of the land, the interest in, and knowledge of, the workings and benefits of it would certainly be increased.

The Scottish Horticultural Association has over 1,200 members. Is there no person from amid that host who will arise, propose, and make energetic endeavours to establish an auxiliary branch to be worked in connection with the Association in Edinburgh? But, no; it is much more congenial to talk of it, and criticise and argue, and throw cold water upon the philanthropist burning with zeal in the cause of suffering men and women—the fallen in the ranks of gardeners. And so a deaf ear is turned to the oft-repeated entreaties.

Coming southwards, there is York, which does nothing; Hull has no branch; Leeds and Manchester, Nottingham, and Sheffield—none of these have an auxiliary that contributes; Norwich, Ipswich, St. Albans, Cheshunt, Ware, Plymouth, Southampton, Dover, Maidstone—each of these might lend assistance, however small, and the best way to do it is to have auxiliary branches of the head society, each with a local committee, a treasurer, and a secretary, whose work could be quietly performed amongst the gardeners of the neighbourhood. By all means enlist the patronage of local amateurs who love gardening as a hobby, and it was Mr. Leonard Sutton, of Reading, who proposed in his presidential speech at the friendly supper in London last Thursday, the need of work for the awakening of amateurs of an interest in this good cause. Mr. Sutton generously promised to arrange with Mr. Ingram, the secretary, for a plan to advertise the Institution, the costs of which he will pay. Mr. Arthur Sutton guaranteed the pension (£20) for one applicant during 1904, and these are examples which others could follow were they more liberal minded.

Mr. Bunyard, of Maidstone, adopts an admirable method of advertisement by including a notice of the Institution in his catalogues, and other nurserymen will doubtless accept the suggestion to follow. The dispensation of charity is surely a noble thing, when it is seen and proved that that charity is urgently required. Those who have given more than a passing thought to the organisation, the officering, and the management of the Gardeners' Royal Benevolent Institution, must have felt satisfied that from first to last it is thoroughly sound, and that economy, combined with efficiency, are prime factors in its working.

It is hardly necessary to call special attention to the very full report of the year's business which we print on another page, but we do so that it may not be overlooked. It is there shown that 204 pensioners were assisted by the grants of £20 a year to men, and £16 a year to their widows, but very many cases, at the extremity of need, were insufficiently provided for, notwithstanding the Good Samaritan and Victorian Era Funds, which help those whose pressing needs demand a pittance while waiting to be elected as pensioners.

Radium and Seed Germination.

Mr. Henry Dixon, in a recent issue of "Nature," gave the result of his experiences with radium on seed germination. He did not find any very apparent quickening of the process of germination or other material change.

History of the Potato.

(Continued from page 39.)

The positive testimony of Gerard proves that the Potato was forwarded to him from Virginia; and how they reached that province of North America will be made to appear probable by the suggestions of Humboldt, in a following page. Gerard, we may conclude, received the tubers from some of the settlers in Virginia, who emigrated thither about twelve years previously, in 1584, under a patent granted by Queen Elizabeth to Sir Walter Raleigh. And thus much is certain, that in 1693, Sir Robert Southwell, President of the Royal Society, communicated to that learned body the fact that his grandfather first cultivated the Potato in Ireland, and that he obtained it from Raleigh. Tradition states, further, that Sir Walter himself also had the root planted on his estate near Youghall, in the south of Ireland; and that he gave them to his gardener as a desirable fruit from America. When the berries were ripe in September, the gardener brought them to his master, with the inquiry of disappointment, "Sir, are these the fine American fruit?" Sir Walter, either really or pretentiously ignorant of the Potato's habit, desired them to be dug up as weeds, and thrown away; but in doing this the tubers were revealed, and found to be the available produce.*

Humboldt rationally concludes that the Virginian colonists obtained the Potato from the Spanish settlements, for it is quite clear that it is not a native of Virginia nor even of intervening Mexico, and that it was cultivated in Spain and Italy before it was made known in England from Virginia.

Although the Potato was known to English botanists in 1596, yet horticulture was too ignorantly practised in this country to permit its rapid introduction among our cultivated crops. In 1619 they were here a desired yet expensive luxury, for in that year of James I.'s reign, a small dish of them provided for his Queen's table cost one shilling per pound, when money was at least twice as valuable as it is now.

Potato cultivation spread rapidly in Ireland, and it became established, it is said, in Lancashire, and that portion of our northern coast still celebrated for its culture, owing to some being on board a vessel wrecked upon its shore. Yet the value of the root was not generally known at a still later period, for in time of scarcity, namely, in the March of 1663, it required to be recommended as a crop of national importance in a letter addressed to the Royal Society. The writer of this letter was Mr. Buckland, a Somersetshire gentleman; and the recommendation was referred for consideration to a committee by the society. The report of that committee was favourable, and the society not only urged its cultivation to landed proprietors, but requested Mr. Evelyn to enforce the society's opinion in his "Sylva," then publishing under its auspices, although it was no favourite with him, for in 1664, in his "Kalendarium Hortense," he says, "Plant Potatoes in February in your worst ground." Before the "Sylva" appeared, namely, in 1664, was published a pamphlet, the first devoted to the subject of cultivating the Potato, and bearing this prolix title: "England's happiness increased, or a sure and easy remedy against all succeeding dear years, by a plantation of the roots called Potatoes, whereof (with the addition of wheat flour) excellent, good, and wholesome bread may be made, every year, eight or nine months together, for half the charges as formerly. Also by the planting of these roots, 10,000 men in England and Wales, who know not how to live or what to do to get a maintenance for their families, may, of one acre of ground, make £30 per annum. Invented and published, for the good of the poorer sorts, by John Forster, Gent., of Harslop, in Buckinghamshire." He says that the Potatoes he recommends for general cultivation "are the Irish Potatoes, little differing from those of Virginia, save only in the colour of their white flowers. These roots, although they came at first from the Indies, yet prosper well in Ireland, where there are whole fields of them, from whence they have been brought into Wales and the north parts of England, where they likewise prosper and increase exceedingly." He recommends a dry, well-drained soil for them, to be enriched with dung if necessary. Planting in March, with tubers cut into quarters or halves, to be buried 6in deep and 8in asunder. The roots, he says, may be begun to be taken up in September, and as wanted until March; so that even then it was known to the cultivator that the colds of winter would not destroy the tubers; and Mr. Forster further adds, that the very small roots must be left in the ground to produce a crop the next year. In conclusion, he gives directions for making Potato bread, Potato biscuits, Potato pudding, Potato custards, and

* It has been stated, but upon no good authority, that Potatoes were cultivated in Ireland long before the time of Sir Walter Raleigh; and Sir John Hawkins in 1565, and Sir F. Drake a few years later, have been named as the probable first importers. If they introduced any such tubers they were probably those of the Sweet Potato, *Ipomoea Battata*; but as the author who makes the suggestion intimates that a passage in Bede's writings can only apply to the Potato, we may very justly conclude that both surmises are equally worthy of attention.—"Holt's Kings of E. g. iii."

Potato cheesecakes. The produce from good ground was three or four heaped bushels per rod. No one, he says, will grudge for them a shilling per bushel. Mr. Forster then considers the growth of Potatoes as a political question, and recommends the King, Charles II., to order an importation of the root from Ireland; and that every man in every parish shall grow an acre or two; and that, out of every £30 worth grown in a parish, £5 shall be paid to the King! He concludes by stating how the Potato may be raised from seed instead of from the root.

Notwithstanding the widely-disseminated opinions of the Royal Society, and these published appeals to the public, the introduction of the Potato, as an object of cultivation, was extremely slow. Worlidge, in 1687, although he remarked that the Potato was then common in some parts of the continent, merely suggests that they may be useful for swine or other cattle.

Houghton, writing in 1699, says they were then very common in Lancashire, being introduced from Ireland, and that they began to spread over England. The roots were boiled or roasted, and eaten with butter and sugar! ("Collections ii., 468.")

Sharrock, Ray, Lisle, Bradley, Mortimer, &c., writing at the close of the seventeenth, and early in the eighteenth century, make most slighting mention of the Potato, and even Miller, in the 4th edition of his dictionary, published as late as 1771, only mentions the same two varieties, the red and the white tubered, which had been noticed by writers a century his predecessors.

Salmon, who wrote in 1711, speaks of the Virginian and the English, or Irish, Potato as distinct kinds, though his description shows their identity—the only difference being that the colour of the skin of the tubers of the first was dirty white, and of the second red. "They are only nursed up in gardens in England and Ireland, where they flourish and come to perfection, prodigiously increasing to a vast plenty. The roots are boiled, baked, or roasted." ("Salmon's Herbal, 905.")

London and Wise, in the seventh edition of their "Compleat Gardener," published in 1719, do not even mention the Potato (but it must be remembered that this is only an abridged translation of M. Quintinye's work, published some years previously). However, even as late as about 1770, the Potato was not known generally in our south-western counties. The late president of the Horticultural Society, writing in 1831, when he was seventy-two years of age, says:—

"I can just recollect the time when the Potato was unknown to the peasantry of Herefordshire, whose gardens were then almost exclusively occupied by different varieties of the Cabbage. Their food at that period chiefly consisted of bread and cheese, with the produce of their garden, and tea was unknown to them. About sixty years ago, before the Potato was introduced into their gardens, agues had been so extremely prevalent that the periods in which they, or their families, had been afflicted with that disorder were the eras to which I usually heard them refer in speaking of past events; and I recollect being cautioned by them frequently not to stand exposed to the sun in May, lest I should get an ague.

"The Potato was then cultivated in small quantities in the gardens of gentlemen; but it was not thought to afford wholesome nutriment, and was supposed by many to possess deleterious qualities.

"The prejudices of all parties, however, disappeared so rapidly, that within ten years the Potato had almost wholly driven the Cabbage from the garden of the cottagers." ("Knight's Papers, 319.")

Mortimer's "Whole Art of Husbandry" was published in 1707, and a sixth edition in 1761, and in these the Potato is dismissed, after a brief notice of ten lines, about half of which are occupied with these observations:—"The root is very near the nature of the Jerusalem Artichoke, but not so good or wholesome. These are planted either of roots or seeds, and may probably be propagated in great quantities, and prove good food for swine."—G. W. J.

(To be continued.)

Refined Sarcasm.

This is an advertisement which appeared a day or two ago in the columns of a German newspaper:—"To those kind friends who during 1903 have shown such interest in the contents of my humble garden. Take notice that in future the key can always be had on application, even during the night, and that to enter by the gate is much less dangerous than clambering over the wall. I shall further be deeply grateful if in future you would be so generous as to leave a little of the produce for my needs. The trees in the orchard, from present appearances, seem to promise a fine crop, but when gathering the fruit I should be obliged if in future you could do so without finding it necessary to pull the tree down. It would also ensure you a larger selection in time to come. For the same reason I beg you to carry a lantern, so that you do not destroy the greater part of the vegetables in walking over the beds. Thanking you warmly in advance.—H. Spengler."



Phrysosiphon Loddigesii.

The illustration represents a flowering specimen of about the natural size, the erect scapes being 6in to 9in long. Orchids of this character are at present in demand, and the one here chosen has some attractions. It is a Mexican plant, bearing its inflorescences with orange-brown sepals and green tubes in the middle of summer, and the scapes are produced by the same leaf in successive years. The plant thrives very well in sphagnum and peat in an intermediate temperature.

Cultural Notes: *Zygopetalums*.

Zygopetalum maxillare is often kept in too great heat, with the result that the growths become weak and infested with insects. The most suitable place for it is a shady, moist corner of the intermediate house, in company with *Odontoglossum grande*, and others of that ilk. It will be starting new growth shortly, and will need attention to the roots. It is of a creeping habit, and the rhizome extends rather rapidly, consequently it should not be grown in the ordinary pots or baskets, but on a block of tree fern. It may be noted by the way that it is frequently imported upon tree fern stems when it grows naturally.

Obviously, such a plant needs little in the way of compost, the natural roughness of the stems being sufficient for it. A little sphagnum moss may be placed about the young growths, but that is all, and these should be so disposed when possible that they grow towards the centre of the block. When the plants have outgrown their blocks a new piece of stem may usually be placed, so that the rhizomes take to it without the plants being actually separated from the old one. My method has always been to cut away all that is really useless of the old block, especially any decayed parts, and then to wire this firmly to the new sound piece.

The larger growing species, such as *Z. Mackayi* and *Z. crinitum* will also probably need attention, the young growths being in a forward condition now that the flower spikes are over. These will require a much more liberal compost and more room, large, well-drained pots being necessary for healthy, established plants. The fleshy roots delight in fibry loam and chopped sphagnum, only a little peat being needed, but plenty of rough crocks and charcoal to keep the mixture open. I have had large, old plants of these species a yard across keep perfectly healthy for years by annual top-dressings of this material without once being shaken out, but, of course, when the old compost becomes sour it must be removed, and this can only be done by repotting.

As the *Pleiones* continue to root more freely, more root moisture will be required, and later batches may be potted as recently described. *Thunias*, too, must not be much longer delayed, as loss of roots follows disturbance after growth has once set in. *Galeandra Devoniana* after flowering must have ample heat and moisture, and all newly repotted plants given closer and slightly moister conditions. Damping frequently between the pots with the syringe is preferable to pouring much water over the compost.—H. R. R.

Book Notices.

Culture of Vegetables and Flowers.*

The rapidity with which the editions of this well-known book have passed out of print and been superseded by others successively, is the best proof of the esteem in which it is held, and is a guarantee at the same time that the matter it contains is not stale, nor are the varieties recommended out of date. If half a dozen books were desired for a gardeners' library, this ought to be one.

It is almost needless to review the book; the contents are arranged alphabetically, vegetables preceding flowers and bulbs, and the most practical advice as to the liberal cultivation of the various subjects is given; and as the type is bold and clear, and the paper of the best quality for reading from, it is enjoyable as well as useful. The chapters on the annuals, making of lawns from seed, on the chemistry of garden crops, and on the insect and fungus pests which attack plants, are admirably adapted for gardeners, young and old, in their studies in these directions. The rotation of crops and the year's work in the floral and kitchen gardens form other sections; while lastly, a good index is provided. It is a book we thoroughly recommend.

* "The Culture of Vegetables and Flowers from Seed and Roots," by Sutton and Sons, Reading. Eleventh edition, price 5s.

England's National Flower.*

In oblong, light blue boards, with gilt lettering and design, the outer appearance of this book is indeed charming. And we dip within, finding there the chosen, honeyed sentiments of the poets in their eulogies of this queen of flowers. Poetry and sentiment are borne on many pages, indeed almost every second one, and adornment of another kind—that of photographic illustration—is found wherever these extracts from the authors are.

The poem in which Jupiter requests Flora to "Search my star called Earth, and cull from thence the sweetest flower," which results in Flora saying, "That I proclaim the sweetest flower of Earth, if one alone, to be Britannia's Rose," is wisely chosen. Flora takes the Rose to Jupiter, who is charmed, and henceforth grants to mortals

Power to cultivate the Rose,
To beautify my planet Earth,
And by their skill to give new birth
To beauteous blended races
That shall excel the parent forms,
As Phœbus in his might
Doth overshadow the stars:
And Britain, though among the least
Of my unfathomable realms,
Shall lead the world in worship of thy choice.

But the practical has not been subordinated to the poetical in the composition of Mr. Bunyard's book, for he has prepared a careful treatise on the various aspects of the culture of Roses. Their propagation, their proper arrangement in beds and borders, and dells and coppices, and in other situations, and the best method of arranging them in vases, has been told in text and shown in illustrations. The lists of varieties suitable for all the various positions that Roses are planted in, or that have marked characteristics, are a strong feature of the work; and there is a chapter on enemies and diseases of the Rose, and another on how to make pot-pourri.

The Heather in Love, Lyric, and Lay.†

How little does the shepherd or the sportsman know of the wonderful story that hangs about the pretty little Heather bells they so often tread to earth! Indeed, how great is the ignorance of all of us is shown in Mr. Wallace's book. And if testimony were needed as to the strong national distinctiveness and homogeneity of the Scottish people, a study of the innumerable beautiful lyrics and poems comprised in the pages of this book would surely be convincing.

The fairies that dwell in the Heather bells and the genii of the Highland hills must have woven their mystic influences subtly round the heart of Mr. Wallace, that he, in the midst of bustling New York life, should have been drawn to do what none of Scotia's sons at home have attempted. But Mr. Wallace is an "exile from home," and we know that the sympathies are sharpened and deepened when the echoes of the homeland ring only in one's memory.

The Heather plant has here been written of from all points of view, and we find a chapter on the etymology of the name (which is of uncertain origin), and on its botanical history. The Heather (*Calluna vulgaris*) differs slightly from the *Ericas*, though it originally was named *Erica* by Linnæus. When Salisbury made the change in 1801 the rule of priority was departed from, because it was easier to re-name one plant and make a new genus, than to re-name all the *Ericas*.

Wide though the distribution of the Heather is—and it occurs through Europe and has been found in Newfoundland—many will learn with surprise that it does not occur in three Scottish counties—Ayr, Haddington, and Linlithgow. We feel doubtful of the truth of this, but must accept it meanwhile. Naturally the Scottish emigrants to the United States of America, and to Canada must have tried times and again to establish their favourite, yet the patch that Mr. Jackson Dawson discovered near Tewkesbury, Mass., was believed to be indigenous, seeing that neither seeds or plants were known to have been brought to the locality. Quite an excitement arose both in horticultural and botanical circles, and a special floral committee was despatched in search of further clues. They were successful, for plants were found scattered over half an acre of ground. This was in 1861, and from deductions the committee believed that plants existed there so early as 1700. Nowadays, however, the Heather is propagated by American nurserymen and gardeners, and "not long ago a landed proprietor in Massachusetts expressed the desire to cover a hillside on his estate with this plant." At the same time, the Heather finds it hard to exist in various parts of the U.S.A., for either the

severe frosts split the stems or the heat of summer causes their collapse. Neither in Australia, South Africa, or India does it thrive.

In his chapter, "The Economics of the Heather," Mr. Wallace shows that this hardy little undershrub is almost as useful as the Bamboo is in another sphere. The fragrance, elasticity, and cleanliness of Heather beds are dilated on, copious extracts being made from writings both of the present day and of times past. Nor are the humble besoms and scrubbing brushes omitted, while the use of the young shoots in the making of a dye, is here explained.

As a forage plant and as a bee-feeder we know the value set upon *Calluna*. "With Scotland's natural advantages in large areas of Heather available, it has been a matter of wonder to some why apiculture was not carried on to greater extent by the Scottish Highlanders than it is." The custom of taking the hives to the hills is dying out, however, owing to the attendant expense.



Phryosiphon Loddigesii.

And here is a reference to strengthen the arguments of those who urgently advise re-afforestation:—"Chambers, in his 'Caledonia,' published in 1807, says: 'It will scarcely be credited that many bleak moors which now disfigure the face of the country, and produce only barren heath, were formerly clothed with woods that furnished useful timber and excellent pasturage; yet it is the fact clearly proved by the positive

* "England's National Flower, a Book for all Garden Lovers," by George Bunyard, V.M.H., Maidstone. Published by Geo. Bunyard & Co., Ltd., The Royal Nurseries, and Simpkins, Marshall, Hamilton, Kent, and Co., Ltd., London. Price 3s. 6d. net, post free, 3s. 9d.

† "The Heather in Love, Lyric and Lay," by Alexander Wallace. New York: A. T. de la Mare Printing and Publishing Company, Limited, 1903. Price \$1.50, post paid.

evidence of record." This quotation the author introduces to his very excellent pages on peat-making. Peat-digging is hard work, but "good nature prevails on every hand, and often the mysteries of rustic courtship here first exchanged ends in hochmagandy some ither day." In connection with peat we are told that some of the whiskies owe their celebrity to their peaty flavour, but ochone! Maree—what Scotsman spells whisky with an "e"? And after whisky comes Heather ale, which provides a chapter of romantic narrative. The secret of the making of Heather ale perished, according to tradition, with the extinction of the Picts. It is the inclusion of such pathetic narratives as we find in this "Heather-ale" chapter, or the brisk descriptive passages on Heather-burning, from Christopher North's "Tales of the Borders" that makes this well-printed book so interesting to read. Had we space, or were this the place, we could also tell of wonderful adventures at Heather-burnings in southern Scotland, and to the days spent in gathering Blae-berries on the verdant hillsides.

Before we reach the well-selected and widely gleaned songs and lays at the end of the book (and some of them are gems of beauty), there are sections bearing such title-heads as Shadow-folk of Heather haunts; Heather bells in Scottish scenery; Heather as a clan badge; white Heather; "Heather Jock"; also the comrade of the Heather; grouse, the Heather bird; chimings of the Heather bells; love among the Heather; and so on, in interesting procession.

In his "White Heather" chapter Mr. Wallace does not refer to the Somalis, who, according to Sir Richard Burton, in certain pastoral ceremonies "lead a ram, round whose neck a cord of white Heather is tied for luck"; which introduces the query: Does Calluna grow on the Abyssinian mountains?

The author has accomplished his task well, and has provided a book of some historic importance, as well as one that is eminently readable. The translations of Ossian have been largely quoted, as well as those by Barbour, Leyden, Logan, Neil Munro, Sir Walter Scott, Rev. Hugh Macmillan, William Black, Robert Louis Stevenson, Dr. Chambers, and a host of others. Though published in America, it is bound to have a brisk demand in the British Isles.

Webster's Foresters' Diary and Pocket Book, 1904.

This convenient pocket-book contains a large amount of information of first importance to landmen, and especially foresters. The pages at its beginning bear tables and notes on such subjects as: Contract work (prices of), bark stripping, croquet ground measurement, land levelling, price of digging land, injurious forest insects, measurement of an acre of land, average prices of home-grown timber, formation of plantations, together with lists of trees suitable for various soils and positions. The chapter on the uses British-grown timber is put to, is of great interest. Besides these and many other references, the little book contains a list of foresters in the United Kingdom. Concise remarks on forestry for each month of the year are furnished. The author is Mr. A. D. Webster, of Regent's Park, and it is published by Wm. Rider and Son, Ltd., 164, Aldersgate Street, E.C., at 2s. 6d.

Publications Received.

"Lawns," by Sutton and Sons, Reading. * * Annual Report, 1903, and schedule of prizes for 1904, of the Royal Horticultural Society of Southampton. * * Report of the Executive Committee of the National Chrysanthemum Society. * * Annual Report of the Reading and District Gardeners' Mutual Improvement Association. * * Report of the Council of the Royal Caledonian Horticultural Society for the year 1903. * * "Notes on Alcohol," by Sir Walter Gilbey, Bart.; Vinton and Co., 9, New Bridge Street, London, price 6d. * * "Principles of American Forestry," by S. R. Green; Chapman and Hall, Ltd., London.

"THE FLORA OF EUROPE."—Dr. Mounier has rendered a service by publishing a French version of his "Excursions Flora" under the title of "Flore Analytique de l'Europe" (Paris: Baillière; London: Williams and Norgate). It is an analytical key to all the genera of flowering plants known to occur in Europe. It is a small volume of 322 pages, and may be, we hope, the precursor of a similar but necessarily much more voluminous work on the species.

Apples from the Antipodes.

The new Apple crop in Australasia is excellent this season. During three months beginning in the middle of February large cargoes will be shipped to British ports. An unusually large quantity of the famous yellow-skinned New York Pippins, the finest Apples grown, will arrive. The total shipments for the season will range between 250,000 and 300,000 cases. Tasmania's contribution alone will exceed 200,000 cases. A special shipment of giant, richly-coloured Apples is to be made from Melbourne, for which fancy prices are expected.

NOTES

NOTICES

Annual Meeting of the N.C.S.

The annual general meeting of the members of the National Chrysanthemum Society will take place at Carr's Restaurant, 265, Strand, W.C., on Monday, February 1 next, at seven o'clock in the evening, Charles E. Shea, Esq., president, in the chair. Agenda: To receive the committee's annual report and balance-sheet; to elect a president, vice-presidents, officers, an auditor, and one-third of the committee for the year ensuing; and to transact such business as pertains to the annual general meeting.

East Ham Amateur Chrysanthemum Society.

This flourishing society, one of the most recently formed in the East of London, has just concluded a very successful first season. The society was started in January, 1903, it held an excellent exhibition, and, after discharging working expenses and liabilities, it has handed over to the East Ham Hospital the sum of £18 15s. 3d., and still carries forward a balance of £2 7s. 2½d. The Chrysanthemum has a large number of devotees among the residents in the East End.

Appointments.

Mr. Robertson Munro (late gardener to P. McLaurin, Esq., Cartside, Milliken Park) has been appointed gardener to Archibald Findlayson, Esq., of Merchiston Castle, Renfrewshire. * * * John Morris, for thirty-three years head gardener to the late Sir R. Moon, Bart., Copsewood Grange, Coventry, has been appointed head gardener to Joshua Perkins, Esq., The Cottage, Stoke, near Coventry. * * * William Edward Lewis, for the last 5½ years gardener to Dr. Garrod Thomas, Clytha Park, Newport, Mon., has been appointed head gardener to C. M. Crompton Roberts, Esq., Drybridge Monmouth. * * * Mr. J. Martin has succeeded Mr. H. West as gardener to E. Behrens, Esq., Bettisfield Park, Whitchurch, Salop.

Worcester Branch of the G.R.B.I.

We publish the following from the Worcester branch's report: "This branch of the Institution has been formed for the purpose of diffusing information regarding its work amongst gardeners, market gardeners, nurserymen, and seedsmen, and to bring more prominently before those interested in horticulture, and the benevolent public in Worcester and adjoining district, its claims for increased support; and also to help forward the candidature of any distressed applicant from the county. The society affords permanent relief by means of pensions (of £20 and £16 per annum respectively) to gardeners and others engaged in horticultural pursuits and their widows, in old age, and when totally disabled through accident or bodily infirmity from following their occupation. Amongst the pensioners now on the funds are five who reside in the county of Worcester."

A Nature Study Exhibition.

Those who are endeavouring to stimulate interest in Nature study will learn with satisfaction that the Bath and West and Southern Counties Society has arranged to hold a Nature study exhibition in connection with its annual meeting at Swansea in May next. The remarkable interest—as shown by the number of exhibits and the attendance of visitors, manifested in a similar exhibition held by the society for the first time at Bristol last year—justifies a belief that the annual migratory show might with advantage be utilised for bringing such teaching as goes direct to Nature for inspiration under the notice of agriculturists and others. The society, therefore, through its Nature Study Committee, consisting of the president of the society (Lord Windsor), the Marquis of Bath, the Right Hon. H. Hobhouse, M.P., Sir C. T. D. Acland, and Messrs. H. M. Cundall, F.S.A., F. G. Farwell, A. G. Legard, H.M.I., J. C. Medd, M.A., G. H. Morrell, M.P., and N. Story-Maskelyne, F.R.S., invites educational authorities and institutions to contribute, for exhibition, collections, models, appliances, &c., illustrative of the subject in question, the desire being to render the exhibition as representative as possible.

Weybridge and District Horticultural Society.

The summer exhibition of the above society will be held at Duneevan, Oatlands Park, on July 14; autumn exhibition on November 3.

Retirement of Mr. Frederick Bowden.

Mr. Frederick Bowden, the respected chief of the seed and bulb department of Mr. Thomas Whalley, St. George's Crescent, Liverpool, has retired. Mr. Bowden served his time with Messrs. R. Veitch and Son, Exeter, and came to Liverpool thirty-eight years ago, and during the whole of that long period has been a faithful and diligent servant. The firm marked its appreciation of his good work by presenting him with a valuable gold watch. Mr. F. Stewart succeeds him.

Presentation to Mr. Metcalfe.

Mr. A. W. Metcalfe was the recipient of a handsome eight-day timepiece on the 19th inst., on the occasion of his leaving Burghley. This was presented by the whole of the garden staff. Mr. H. Turner (general foreman) made the presentation, expressing the deep respect and esteem in which he was held by all present, and after making reference to the many improvements carried out, concluded by conveying best wishes for his future success in his new appointment at Luton Hoo. Mr. Metcalfe suitably responded.

South-Eastern Agricultural College, Wye, Kent.

A meeting of the Governors of the South-Eastern Agricultural College was held at the Westminster Palace Hotel on Monday, January 25. On the motion of Earl Stanhope, Mr. E. J. Halsey (chairman of the Surrey C.C.) was elected chairman for the ninth time, and Mr. George Marsham (chairman of the Kent C.C.) as vice-chairman. The principal (Mr. M. J. R. Dunstan) reported that seventy-four students were at the College—the highest number yet recorded—and the Governors adopted the recommendation for the establishment of a practical course in forestry instruction, which will include the planting up for demonstration purposes of a considerable area of land with pure and mixed plantation of forest trees and the provision of the necessary teaching staff.

Obituary: Mr. William Ratchelous.

This well-known horticulturist, one of the leading inhabitants of St. Neots, Hunts, died on the 22nd inst., after a severe illness, at the age of sixty years. A member of a family long resident in the district, he commenced his gardening career under his father, who was head gardener at Priory Hill, and rose by degrees until he took charge of the gardens at Waresley Park. Thirty years ago he became manager of Messrs. Wood and Ingram's branch nursery at St. Neots, serving the firm loyally, and becoming widely known in horticultural circles. He was the secretary of the St. Neots Horticultural Society, and hon. secretary of the Chrysanthemum Society in that town. He also acted as branch secretary to the Sandy Flower Show, and was always one of the judges at that popular floral festival. His services were also in demand as a judge throughout the county. He was an active supporter of all institutions of a beneficial character to the town. As a Cucumber grower for seed purposes he was almost without a rival. He leaves a widow and grown-up family.

Agapetes in Flower at Birmingham.

During the past few weeks *Agapetes macrantha*, a very interesting but little-known plant, has been displaying an abundance of showy pendent waxy flowers in one of the cool conservatories in the Botanical Gardens at Edgbaston. The species was discovered on Kola Mountain, Moulmein, upwards of fifty years ago, by Mr. Thomas Lobb, a noted plant collector, and notwithstanding its great decorative value it is rarely seen outside good private and botanic gardens. This is a pity, because it is by no means difficult to accommodate, and at blossoming time it stands out, not only as the best of the genus to which it belongs, but one of the most useful of hardwooded winter flowering subjects for indoor purposes. Botanically it belongs to the natural order *Vacciniaceæ*, is allied to the Cranberry, and first flowered in these isles at Exeter in 1850, at which period it was known under the name of *Thibaudia macrantha*. It forms a bushy shrub, with long, arching, brown-barked shoots, along which appear in axillary clusters drooping flowers which remain in good condition for nearly two months.

The Horticultural Hall.

The new hall of the Royal Horticultural Society, which will be opened in June, has already been partly roofed. The front portion, which includes the offices and meeting rooms, is practically finished in this respect with the exception of the slating. Funds are needed to clear off the outstanding liabilities.

Lectures on Advanced Botany.

A course of ten lectures on "The Morphology and Affinities of the non-Filicinean families of Vascular Cryptogams" will be given at University College by D. H. Scott, F.R.S., Honorary Keeper of the Jodrell Laboratory, Royal Botanic Gardens, Kew. The lectures will be given on Tuesdays at 4 p.m. The first lecture was given on Tuesday last, Dr. Scott's syllabus of the lecture being as follows:—"The main groups to be considered: Lycopodiales, Equisetales and Sphenophyllales, the two former including both recent and fossil forms, the third, as here provisionally limited, wholly fossil. Is there any natural bond of union between these groups? The proposed class Lycopsidea, embracing all the three, in contra-distinction to the Pteropsida or Filicineæ. Basis of this classification. The proposed distinctive characters open to criticism, but the classes Lycopsidea and Pteropsida nevertheless natural. This conclusion demands a consideration of the fossil evidence." Lecture II. will be given on February 2.

Suicide of Mr. Benj. Wells, Crawley.

Mr. Benjamin Wells, the fruit nurseryman of Crawley, Sussex, hanged himself on Saturday of last week at his home. At the inquest on the body it was shown that he had made remarkable preparations for his suicide. His dead body was found on Saturday near his house. A letter to his wife, written by the deceased, was received that morning, and stated that his body would be found there. Around it was tied a rope, one end of which was made fast to a plank at the top of a wall. A label was attached to the rope, with the following written upon it: "Please put this body in the packing-shed close by; it is unlocked for the purpose. Do not take it up to the house; it will distress the women." In the packing-shed deceased had erected a stretcher upon which his body was to be laid. Mr. Wells had been depressed lately. A verdict of suicide whilst temporarily insane was recorded. He was a regular contributor to these pages some years ago, and was author of a small book on fruit culture.

Sunderland Gardeners at Dinner.

The annual dinner of the Sunderland and District Gardeners' Association was held last week. The Rev. Dr. Randall, in proposing "The Gardeners' Association," said that meeting together systematically, and comparing notes upon each other's works, successes, and failures, and so on, was of great benefit to all individual members. He was pleased that evening on coming into the room at seeing what a large infusion of young blood was in the society. He congratulated the society upon that. The year had been a record for success and prosperity in the annals of the institution, and new members must have contributed greatly towards this satisfactory state of things. Mr. Bolam responded. At the founding of the society, in 1891, they considered the best lines they could work upon were to get practical gardeners at the head of affairs, and to have all their officers gardeners. By adhering to that good principle all their officers had held together. They had had twenty-six meetings; a great number of exhibits, and those of high quality. That was amply denoted in the awards of merit and certificates for culture. In addition to that, they had had two or three important visits to other places. One, for which they were very much indebted to the Rev. Dr. Randall, was an inspection of the grounds of Bothal Hall, in which they were all anxious to see a display of some spring flowering bulbs. Something like eighty members were invited to visit the grounds of Earl Lonsdale at Lowther Castle. There they saw a sight the like of which he thought they had never seen before. Fifty thousand Begonias were in full bloom in the middle of a very bad season. The work that they did was one which deserved every encouragement. The chairman then presented the secretary, Mr. J. T. Richardson, with a gold watch and albert, two gold keys and pendant, and a diamond brooch for his wife. In doing so he eulogised Mr. Richardson's work.

"Sersieties."

I must first explain to you, Mister Heditor and readers all, that there's bin ruckshons in my little family sirkle since last I rote. The fact is, my missus has set her foot down, and when she does that I can asslhure you that a big lump falls. The stand the owd wooman takes is that I'm makin' a name in the world o' literatoor, and that I ought to no longer be known simply as "the man who serves the kitchen," but that my full and 'onered family name should be at the foot of all future artikels I rite for th' Jernel. Now, I'm a modest chap meself, Mr. Heditor, and would rather ha' stuck to th' owd title, but th' missus ull have no nay, so I've done as th' lawyers often do when they've drained all th' money out o' both sides in a case—I've effected a compromise by using th' name as was given to me by my godfethers and godmothers in my baptism, &c., which is Jim, and as I'm gen'rally ealled owd Jim in th' pottin' shed, I've ventured to add that 'ere adjective as well. In this way both th' missus and me is satisfied, and 'oping, Mr. Heditor, as you'll be th' same, I'll perceed wi' my tale.

Sersieties is all the go just now, and it seems to me that if a chap wants to bring hisself afore the publick in th' gardening world all he has to do is to start one. (I may tell you, Mr. Heditor, that I've an ideer o' my own for an Amalgamated Sersiety o' Garden Laberers, but I can't start it goin' just yet cos I ain't quite sure where th' moneys comin' from.) I gather from what I see in th' Jernel from time to time that th' Royal Horticultooral Sersiety is goin' strong, and wot wi' a new 'all in Lunnon and a new garden in a nice quiet part o' th' country somewheer far from th' maddin' crowd wheer nobody can get at it, the outlook seems bright. More fellers keep flockin' in, they tell me, and I 'ave thorts o' sendin' my own modest guinea, but as it happens, our 'ead man is a F.R.H.S., and doesn't forget to rite th' letters arter his name, and if he seed letters come to th' garden addressed to Mister Jim —, F.R.H.S., he might not like it, and I'm a man o' peace.

Chrysanthems, Roses, Dahlias, and Sweet Peas all has their sersieties, and now I 'ear there's bein' a spechial one made for tatur and another for th' gardeners as grows 'em. From wot I can make out o' th' gardeners' association it's th' outcome of a gardeners' dinner as took place last autumn. Now gardeners like a dinner above all things, cos it gives 'em such oppertunities for pattin' each other on th' back and mutual hadmiration, and I would suggest to th' infant association that it arranges at leest two dinners a year, and as many more as it can see its way to work in. Dinners I'm convinced is essential to th' welfare and sucksess o' th' Gardeners' Association. I'm told that one o' th' hobjects o' th' body is to raise th' status o' gardeners. Werry good, and if it can see its way to raise their wages at th' same time, and do somethin' towards th' increase o' laberer's stipends as well, so much th' better. I can't see much good in raisin' th' status (wotever that may be in this partikler case) unless th' income goes up along with it. Gardeners ain't to be domestick servants arter th' Association gets inter full swing, remember that, but just exackly wot they will be ain't bin made quite clear as yet.

It seems to me my gardenin' friends as the Association is goin' to divide yer up inter lots, or grade yer, same as they does Apples and Tatur, so that when a gentleman engages a gardener he'll apply to the Association for a number one, two, or three just accordin' to th' soart o' chap he wants, and the amount o' wage he can pay. I don't know whether this will eventually lead to gardeners bein' registered and numbered same as motor cars, cos if so it 'nd be rather amusin' to see all th' gardenin' fraternity at th' Temple Show, for instance, wi' their number badges on.

Whether jerneyemen, inside foremen, outside foremen, kitchen garden foremen, flower garden foremen, and foremen over th' Mustard and Cress department (it takes a lot o' foremen to run a decent-sized garden) will be included as members o' the Association I don't know; but if some o' th' samples as I've come across are to be graded, somebody's goin' to 'ave a tough job. I 'ear that one o' th' suggestions is that gardeners shall pass an examination (lor! I'm sorry for some o' 'em), but if this is so, all th' men may as well emigrate to Canady at once, cos th' women can lick their 'eads off at passin' examinations judgin' from th' records o' th' R.H.S. and th' way those lasses from Swanley and other places capture th' marks. I nivver knowed but one lady gardener by examination, and she went and married th' butler afore she'd bin in her place three months, so her gardenin' career was nipped i' th' bud early.

Wot the Associashun will do for gardeners remains to be seen, but I wish it well, and in the meantime I'm waitin' to see if any o' th' offshals are to be paid, cos if so I may interest myself further in it.

Tatur 'ave bin verry much to the front lately, and wen I think o' th' price of them Northern Stars and Elderados my mouth fairly waters for th' possession of a few ton of 'em. I

shouldn't plant 'em, you bet. So at last the old tatur is goin' to 'ave a sersiety all on its own, is it? Werry good, and it's a wonder to me as nobody has thort o' such a thing afore. Bein' a bit of a tatur man myself I asked the old wooman to look inside o' th' best teapot, as stands on th' chest o' drorers and see if there was a spare harf crown there for a subskripshon, but my missus is a wooman o' bisness and afore she'd move, a peg she wanted to know wot this tatur sersiety is goin' to do. She floored me a bit there, but I weedled th' harf crown out on her by telling her wot it *might* do.

Last yere I wanted a few tip-top tatur just to take the shine out of a chap with at our flower show, so I sends for harf a dozen soarts from different places and plants 'em. Would you beleeve it, but wen I coom to dig 'em they wos so much alike that I was afraid o' stagin' 'em as distink varieties for fear o' bein' disqualified, and o' course the other chap got the prize. Perhaps th' new sersiety ull put a bit of a check on th' traffik in new varieties, so as one can depend on 'em bein' distink. Elderados and Discoverys ain't affected my pocket much yet, cos I think this 'ere boom is all 'umbug; but you may bet your bottom dollar that if there are fortunes to be made out o' new tatur th' market won't be short of 'em unless there's some dishinterested authority just to tell folk the truth about 'em.

I should like to see one reeal good tatur show afore I 'ands in my cheeks and there seems a chanse o' such a thing now. There's one thing to be remembered, howivver, shows cost money, and th' trials as they're talkin' about ain't goin' to be run wi'out spendin', so it seems to me that if th' tatur sersiety is goin' to flourish, a good menny folks had better follow th' hexample of your 'umble servant and send in their subskripshons. They needn't confine themselves to harf crowns if they can afford more.

I would sergest as th' tatur sersiety has a kind o' medikal committee as ull be able to tell us why sertin tatur won't grow arter they are planted, and why disease upsets the show so much in spite o' Bordo Mixcher; fact we want some authority to go to wen in trouble 'stead o' blunderin' on i' th' dark same as we do now.

I 'ear that the Association referred to is goin' to klassify gardners and th' other sersiety is goin' to do the same wi tatur. Whether gardeners want klassifying I'll leave others to judge, but that tatur do there ain't a shadder of a dout w'en kidneys and rounds is so mixed up that you can't tell t'other from which. There's roomers o' makin' that peetrol stuff wot drives motors along out o' tatur, but if it makes 'em go any faster than they do now I shan't vote for it, and they tell me as th' fiskal problem affects tatur, I ain't 'eard yet whether the tatur sersiety is to be considered a free trade body or whether it throws in its lot along o' Joe, but there's a tork o' Lord Roseberry bein' th' fust president, and we know his views on the subject of tariffs. However, it's early days yet to tork about th' politiks o' th' new sersiety, and the thing is to set it goin'. My missus, who's tried to boil three or four o' my crack soarts so as we could eat 'em, but ain't suckseeded yet, says as it's time summat wos done to stop 'ard-working men from throwin' their money away on things as ain't no good, and her opinions are good enough for—OLD JIM.

The Seed Order.

(Concluded from page 52.)

BRUSSELS SPROUTS.—The Cambridge has stepped into a vacant place, and will probably be more inquired after this seed order time. There are, however, so many really excellent stocks of these that the rest which raisers have apparently taken can be appreciated by growers generally. All the leading seedsmen have a selection of their own, which, according to individual opinion, defy competition. Sutton's Dwarf Gem has been very good; so also has Market Favourite, Dobbie's Selected, and Williams's Exhibition.

RUNNER BEANS.

Hackwood Success is the latest comer, and its credentials point eloquently to a useful future. One would think in reviewing the many dozens of handsome dishes at summer shows that the acme of perfection had already been found. Champion, Sutton's Best of All, really a fine Bean, Holborn Seedling, Too-good's Triumph and Excelsior and others perhaps as good as many hope for.

BROCCOLIS

await a severe winter to determine once again intrinsic hardness of character. So long as the weather does not become too near the zero point, and makes but short stays, any of the kinds may be depended on in their season, and there is ample and to spare in each section. Up to the time of writing we have

not ceased cutting a daily supply from Self-protecting and Winter Mammoth. Awaiting is Sutton's Superb Early White, Snow's, and Spring White, which, given suitable weather, will give of their kind till spring is advancing.

TOMATOES

must not be forgotten, for the daily demand for these by no means slackens; rather, inquiry is more frequent. It is curious the yellow fruited kinds remain so unpopular, especially remembering what a quantity of Tomatoes are now eaten in a raw state. Lister's Prolific, for the moment, is the most in demand; indeed, the supply does not meet the inquiry made. Outdoor crops, which at one time proved so useful and reliable, have lost much character of late years by reason of disease playing so much havoc. It will not do, however, to relinquish effort in this direction. Sutton's and Carter's outdoor stocks are as good as can be obtained, and Holmes' Supreme needs a lot of beating

summer, and Beauty of the Parterre is a nicely crested Parsley. There are many others that are good.

HERBS.

such as Thyme, Sage, Chervil, Sorrel, Basil, and Marjoram are more or less in demand in every household, and may be replenished from seeds each or any year should the stock run short.

TARRAGON is only offered by few seedsmen, and is not then dependable when the French chef has to use it. There is Tarragon and Tarragon according to this authority, a spurious and a true form. Most probably the first-named may easily be raised from seeds, the other not; hence roots obtained from a reliable source must be had if this most important of the gardeners' allies asserts his opinions and demands, and which he often does. Herbs more than anything bring the gardener and cook into conflict, the more so when there are changes in this branch of service. One may grow some kinds for years without



View in the Kitchen Garden, Rood Ashton.

for outdoor growth, given normal weather. Winter Beauty and Brooks' Freedom are both favourites, as also are Early Ruby, Early Marvel, and Early Express. The Currant is decorative.

PARSLEY.

In the kitchen there is a continuous demand for Parsley, and perhaps it is the garden product of all others calling for the greatest use, extending over the twelve months of the year. Parsley finds its own value when, after periods of sharp frosts, it becomes scarce and short of leaf; until then Parsley is regarded as a common herb. A bed of good curled Parsley, however, is an ornament to the garden, and finds many admirers. It is in the kitchen where it becomes an abused name and article when plentiful. That which is so ornamental and beautiful in its deeply crested leaf is not usually that which withstands the rigours of wintry weather unscathed. For this reason the gardener must not confine himself to one kind alone, but rather choose for summer as well as winter's use. For the latter purpose Covent Garden Garnishing and Myatt's are dependable, and Carter's Perpetual is said to stand more than one year before going to seed. This should be a useful kind to include in the current seed order. Imperial Curled I always sow for

even a casual inquiry under one, or it may be two cooks. A further change will be the cause for "touching up" something it may be long forgotten simply for want of demand.

We have kept a varied herb bed in condition for years until from laxity of purpose and interest they have subsided, and they are grubbed up as being not worth the land occupied. Probably as soon as this is accomplished a change of kitchen staff is made, and just those things disposed of are at once inquired for. This is no casual experience, but one familiar to many *Journal* readers.—W. S.

VIEW IN THE KITCHEN GARDEN AT ROOD ASHTON.—This is the estate of the Right Hon. Walter H. Long, president of the Local Government Board, though it is tenanted by others, and is at present finding new occupiers. The view here given is that of part of the well-cropped and trimly-kept kitchen garden, which is under the care of Mr. W. Strugnell, the gardener-in-chief. A good deal can be learned from the study of a scene like this.



Ordering Fruit Trees.

In reference to "Planter's" remarks, page 53 of your issue, January 21, allow me, for my firm, as one of the largest growers of fruit trees, to say that we do not catalogue any fruit beyond those we have in stock, and that, I believe, is the custom with the best firms generally. I venture to think that "Planter's" difficulty is more referable to the "form" of tree than to the sort of Apple. In many Apples we have to keep as many as ten or twelve forms of training, &c., and it will often happen that, say, a gridiron tree is asked for, which cannot be supplied, although the stock of horizontally trained trees may run to hundreds, and other forms of the same sort to thousands. But beyond this, with the greatest care, varieties will get sold out, and nurserymen never know till the season begins where the demand may fall heaviest: and, further, it takes from three to six years to make some forms of trees. Few realise the enormous difficulty in keeping up stock. I could name many sorts of which there are no developed trees to be had in the country. If purchasers would leave themselves in the nurserymen's hands to select substitutes to fill orders, they would often get better trees, and of varieties even superior to their own selection, which they may never have heard of, but which are well proved and generally better "doers" and bearers than the sort originally selected.—GEORGE BUNYARD, V.M.H., Maidstone Nurseries.

The Proposed New Fellowship Subscription of the R.H.S.

While the proposed alteration of the minimum subscription for Fellows of the R.H.S. is not to affect those who at present pay £1 ls. per annum, it is doubtful if it will be eventually to the advantage of the Society, as it will tend to limit the number of Fellows to a considerable extent. As one who will not be affected by the proposed change, let me say that the alteration will press hardly upon one who resides at a distance from London, but who desires to become connected with the great national horticultural society. In his eyes the table in the Society's report showing the return a Fellow will receive for his £2 2s. subscription will hardly be convincing. For his £2 2s. he may receive what is put down at £12 4s. 6d.; but what he will receive is a different tale.

To secure this £12 odd in value he must attend the Temple show and dispose of his spare tickets on all three days; he must do the same at the Holland House show; and he must attend twenty-five exhibitions. How many Fellows living, say, 200 miles or more from London, are able to avail themselves of anything like that number of shows and exhibitions? How much would they require to expend in railway fares and expenses to attend, say, the Temple show alone? Then the Journal, splendid though it is, is surely put too high at £1 10s. per annum! I suppose we must take its value from its cost to the Fellows who are "partners in the concern," although the compilers of the table of "returns" may look at it another way.

According to the accounts in the last report, the printing and postage of the Journal cost £2,219 8s. Another item, "Commission on advertisements, Journals, &c.," may perhaps fall to be added. This is £63 5s. 7d., making in all £2,282 13s. 7d. Against this falls to be placed the income from "advertisements in Journal," £689 11s. 8d., with £109 3s. 4d. for Journals sold. Possibly some of the latter amount may be from the sale of Journals of former years; but suppose we put the two at £700—a low estimate—the cost of the Journal is brought down to less than £1,600. There are upwards of 7,000 Fellows, so that one cannot count the money value (I say nothing about the literary value) at more than 5s., certainly a wonderfully cheap publication. It seems a little ungrateful and captious to go into this matter, but the report of the council and their recommendation justifies it. It is possible that the increase of the numbers attending the exhibitions may make the exhibitions too crowded, and it may be necessary to check the increase. Could not this be done without making the country members at a distance from London pay much more in proportion to the benefits they can possibly receive? I know the budget of one at least would show a different figure. There is, certainly, a set-off in the shape of a double number of plants, but five more plants in the case of a £1 ls. fellowship subscription will not compensate for the losses of privileges of members many miles away. Would not a £1 ls. fellowship for country Fellows (100 or 200 miles from London) be a fairer proposal and

one more likely to help the Society in retaining its hold upon horticulturists all over the kingdom? This is said in no spirit of hostility to the council, who deserve every support at this time, but with a view to the best interests of horticulture in these islands, and of the Society at its head.—A FAR-AWAY FELLOW.

Potato White Beauty of Hebron.

For years previous to 1902 I grew regularly two acres of this Potato, and when lifted in August or September it was quite first-class in point of quality. During that year I discarded it, owing to its meagre yield, but regretted doing so on account of a loss of its flavour, which is, in my opinion, unequalled by any other. In 1903 I planted a ton of it, and find the quality when cooked is quite satisfactory, and will be next May if necessary. Can this be said of any other Potato? If I get half the crop as compared to Up-to-Date, for example, I am satisfied, as with me, for so many tons, quality is the first consideration.—E. MOLYNEUX.

Giant Poinsettias.

Probably not in the whole of Cheshire is to be seen so magnificent a floral sight as at present exists in the stove belonging to Herbert Marsland, Esq., Woodbank, Stockport. Under one roof there are twelve plants of the Poinsettia pulcherrima now in full resplendency, having over 200 of the magnificent scarlet bracts gracefully hanging from the stems, and when it is mentioned that many of the "heads" measure 16in across and number as many as forty-eight, some idea may be gathered of the mass of colour which fills one half of the stove, measuring 31ft by 28ft. Some of the leaves measure 7½in in length, 4in width, and the main stems of some of the plants are 6½in in circumference. They were originally placed in pots on a bed of soil, but their roots have demanded, and gained, a larger space than the limitation a flowerpot gave, for they are now firmly fixed in the bed of soil 26ft by 2ft, and the depth of soil 18in. Mr. Johnson Mayhew, the gardener under whose watchful care those plants have so wonderfully thrived, has produced something of which he may be justly proud. Poinsettia pulcherrima is a Mexican evergreen shrub, allied to the Euphorbia, [indeed now included in the latter genus.]—M. M.

Happy-Go-Lucky Fruit Culture.

Judging from the communications which have appeared over the pen names of "Briton" and "Patriot," there would appear to be still scope for the spreading of plain, rudimentary knowledge in the planting and tending of fruit trees. Having occasion to remove a large standard Pear a year ago which was manifestly in poor health, it was found, on digging down below the surface soil, to be planted in a highly fertile mixture of sand, mortar rubbish (great blocks of this), and glass bottles. The tree (of the Beurré Superfin variety) was carefully transferred to good soil, and has made a little clean, healthy growth, and is literally covered with plump fruit buds. This is but a small illustration of careless planting as compared with those furnished by your correspondents, and it is perhaps doubtful if a multiplicity of these instances can do much good; but yet they may serve as a warning to would-be planters.

I have in my mind at the moment a noted Cherry orchard, which has borne heavy crops of fruit for a number of years. The trees are only too surely on the down grade, and there are now annual losses amongst them. Where an old tree dies a young one is "stuck" in, exactly upon the old site, without any manure being added to the soil, and with as little disturbance of the latter as suffices to cover the roots. There are now a fair number of young trees in this orchard that have been planted from time to time, and they ought to be in varying stages of development; but all might have been planted in the same season, so small is the progress made by the earlier planted ones. Writers and horticultural instructors are continuously hammering away at the lax methods of so-called cultivators; yet, in spite of the encouraging signs of enlightenment to be seen in some localities, the old loose ways prevail, and many of the growers in what are known as the fruit growing districts are amongst the worst offenders.—COUNTRYMAN.

The Weather of 1879 and 1903: Erratum.

The ingenuity of "the printers' devil" (whoever he may be) in making a man say exactly what he did not mean, by the smallest possible mistake, is, I believe, well known; but a good example may be found on page 53, last paragraph, where the sentence in brackets, "Not being 70deg or over in shade," should, of course, be "'hot,' being 70deg or over in shade."—W. R. RAILLEM.

* * * A number of letters have had to be held over.



Pears in Belgium.

(Concluded from page 60.)

In our country districts we are confronted everywhere with the bare walls, usually black, of barns, granaries, cowhouses, stables, coach-houses, poultry houses, and outhouses generally, to say nothing of the walls of dwelling-houses, which would not only look much better covered with the handsome foliage and still handsomer fruit of Pear trees, but would be a considerable source of profit. Where there is any risk of cattle coming into contact with the trees, they might be on tall stems with some wire netting round the base to keep off such animals as sheep, which are fond of gnawing the bark of young trees, to say nothing of rabbits. A few short stout stakes round the root, forming a sort of fence, might be an additional protection to the trees for the first few years.

Where there is no danger from animals, dwarf trees are better than standards, as a greater amount of wall space is covered in that way; but better than either for high-boarded fences, or the high walls of outbuildings, is the system of cordon Pears—a system but little practised in Belgium as far as my experience went—than which there is no other method for covering high walls more quickly. The trees are 5ft to 6ft high when plants—if three-year-old trees are bought—and will run up another 2ft the first season and 2ft or more the second season, by the end of which they will be 8ft to 10ft high, even allowing for a little cutting back which some varieties need, and this, remember, not with one or two isolated branches with large bare spaces in between, but over the whole space allotted to the trees. Thus the unsightly wall of an outbuilding 10ft high might be quite covered up in two years. Even Ivy will not do this in the same time, as it is a slow grower till it gets established.

In the case of farm buildings, or stables and coach-houses of an ordinary country house, where there are several men and boys about, there is always the risk of losing some of the fruit, and doubtless some small portion must often be lost. In Belgium this difficulty does not enter into the matter so much, as it is a country of small farms and peasant proprietors, where the people about the buildings are for the most part the owner's own family.

The risk of loss, however, even in this country may be reduced to a minimum by planting late autumn or winter Pears, which are not toothsome while on the tree, and it is just these late Pears which pay best for a wall—if it is a sunny one—as in some summers they do not develop their best flavour in the open. Men and boys who will not hesitate to pick a ripe Pear and eat it will generally stop short at putting Pears in their pockets and taking them home to stew.

I may have written as if all walls were sunny, and therefore suitable for late Pears, as it is no use putting such Pears on any but a south-east, south, or south-west wall; but even a north wall will do for some of the early hardy Pears, while an east or a west wall, more particularly the latter, will suit most of the October and November Pears. Where the wall will only do for August and September Pears, of course the immunity from loss referred to above will not exist.

As regards stocks, whether the Pears are cordons, dwarf-trained, or standard-trained, they should be on Quince stocks, unless the soil is of a very dry, sandy, gravelly, or chalky nature, always excepting the case of those few Pears which are not a success on the Quince stock in any soil. Where the soil is so dry as not to suit the surface-rooting and moisture-loving character of the Quince stock, then the trees should be on the Pear. The objection to the Quince stock for standards in the open, namely, that the Quince has not a sufficiently secure attachment to the soil—not strong enough anchor-roots, in fact—while the point of union of the Pear and Quince is always liable to give way in a high wind unless the trees are staked—an impracticability with standards of any size—does not apply, of course, to trees secured to a wall, whether standard-trained or otherwise.

Boarded walls or fences have, as a rule, to be either tarred or painted every few years. The frequency of this is lessened when the walls are covered with foliage, as they are less exposed to the alternations of rain and scorching sun. Still, it has to be done sometimes, and this may seem at first sight an insuperable difficulty in growing Pears on walls or fences of this character.

Some years ago I had to have all my garden brick wall re-

pointed with cement, and as my Peaches, Apricots, and Plums came off unscathed in the process it may be as well to say how I managed them, for if trees can go through such an ordeal without injury—and surely a bricklayer among fruit trees is a veritable bull in a china shop—there is no reason why trees should receive any damage from the painting or tarring of a boarded fence, though it must be confessed the business is a nuisance.

If the work is done in late October, which is about the least inconvenient time, labour may be spared by doing no autumn nailing-up or tying in till it can be done for good, while if the painting, &c., is done in the early spring—and the latter part of March is the very latest time at which it should be done—the usual winter or autumn nailing up may be deferred till after then, though the pruning should be done at the usual time, it being possible to tell what wood must be cut out for want of space without actually nailing or tying it in.

Whenever it is done, the whole of the trees must, of course, be unfastened from the wall, the branches tied carefully together in convenient sheaves—not too tightly, or blossom buds will be broken off—and the bundles of branches pulled two or three feet from the wall by attaching them by a cord to stakes driven into the ground, or to other trees conveniently near. It seems a good deal of bother on paper, but it is not so much as it appears when resolutely taken in hand, and it should be borne in mind that it need not be done more often than once in four or five years.

If a man is a benefactor to his country who makes two ears of wheat grow where only one grew before, he is also a benefactor who in any way increases the produce of his ground by using space which has never been used before, even if it is only for such comparative luxuries as Pears. The time is coming when we shall make more use of our resources—agriculturally and horticulturally—than we have done in the past. I know of a very successful exhibitor of Pears who grows nearly the whole of his show fruit in such positions as have been described above. *Ab uno disce omnes.*—A. PETTS.

Early Rivers Cherry.

This seedling Cherry was raised by the late Mr. Rivers from Early Purple Gean. The tree first produced fruit in 1869, and received a F.C.C. from the R.H.S. in 1872. It is an abundant bearer, the fruits being generally ripe at the end of June, or before. Messrs. Rivers and Son's description is: "Large, black; very hardy, early, and rich; small stone. This fine Cherry is becoming more popular every year, and has proved the most valuable kind for market planters. Standards produce large crops of handsome fruit ready for gathering early in July out of doors; it has been thoroughly tested in the Kentish orchards, from one of which, in the season 1899, the fruit realised 32s. per bushel of 48lb net. In the orchard house it ripens the second week in June, and will hang for a month." Messrs. Bunyard and Co., Ltd., say that it is one "of the best for forcing or for the Cherry house, and valuable for wall; as an orchard tree it requires close pruning for three or four years, and then forms a grand tree. The fruit makes a very high price in the market." They add the subjoined note in their catalogue: "The culture of Cherries in a cheap cold house, constructed for the purpose, is both profitable and interesting. Owing to the birds, it is seldom they are preserved until thoroughly ripe. Under house culture Cherries attain a size and colour seldom seen, while the flavour is most delicious. All that is required is to prevent aphides by timely fumigation, keep the roots well supplied with water, admit fresh air freely, and syringe frequently in the early stages of growth."

The Dodecatheons.

Some of the members of the Dodecatheon genus have been introduced into this country from the western hemisphere more than a century, and the American Cowslips are among the handsomest of hardy flowers. Why they are called by this fanciful name is not so easily understood. Certainly they belong to the same family as the Cowslips, but they have no resemblance whatever to the latter flowers. They belong to the Primulaceæ, and in growing them it is most beneficial to associate them with such plants as Primulas, Soldanellas, and Cyclameus. Where any of these genera will flourish they are equally happy. If a bed is set apart after due preparation for Primulas the Dodecatheons may be depended upon to flourish as well. It is necessary that the position selected should be a moist and shady one. We have seen Primulas planted in sunny positions, and unless constant and copious supplies of water are given them during a dry season they are literally baked. They succeed remarkably well on the rockery, planting them in shady places, readily establishing themselves, and flowering very freely. Some growers recommend for their successful culture light peaty soil. With that treatment, however, we do not agree, knowing well

that although they thrive in light peat soil, at the same time the result of experience is greatly in favour of employing light loamy soil, leaf soil, and sharp sand, which is also an excellent soil for most of the *Primulas*. Planted on the rockery in a small portion of that soil they will succeed well, and the result will be satisfactory.

The typical forms of *Dodecatheons* are all natives of North America: some of the varietal forms of *D. Meadia* may have originated in our gardens, or have been introduced as natural varieties, since, like almost all the genera of *Primulacæ*, they are easily worked upon either by artificial or insect agency. They are all perennials, easily increased by division of the root-stock or from seed, although the seed, if sown in spring, is frequently slow in germinating; in fact, we have had it germinate after being in the pots twelve months. The seed should be sown as soon as ripe, but if purchased from a seedsman it is as well not to discard it until all probability of its germination is past.

The plants produce erect racemose spikes of pendulous *Cyclamen*-like flowers during the early summer months, with the segments of the corolla sharply reflexed. The generic name assigned to these plants by Linnæus is very absurd, as it literally means "twelve divinities," and like a multitude of other names the similarity or associations of the subjects in question with those represented only rests in a very remote region of the imagination. Below are enumerated some attractive species and varieties.

Dodecatheon integrifolium is widely distributed over North America, varying to some extent; it grows from 9in to 12in high, producing numerous spikes of bright crimson flowers, which last a considerable time in beauty. This is as handsome and durable as any of them. *D. Jeffreyanum* is a more recent introduction than the last; it varies in height from 1ft to 2ft, usually growing about 18in high, producing strong scapes of bright rosy purple flowers, which are also rather larger than those of the last.

D. Meadia is the most common of the series, and is frequently known as the "Shooting Star of the West." It is very widely distributed throughout North America, and there is a large amount of variation, which has originated the establishment of many varietal forms. The typical form produces scapes about a foot high, bearing several flowers of lilac or rosy red colour. It is a very valuable species, and will thrive well in ordinary borders if a select position is given to it and a little attention. For growing in pots it is valuable, and the cultivator is well rewarded.

Varieties of this species worth growing are *album*, which is similar in all respects to the type, but has white flowers. *Elegans*, a charming variety; the flower scapes are freely produced, bearing several large, bright rosy lilac flowers. This is also a vigorous grower. *Carneum*, with very delicate blush flowers, produced in very large umbels. *Giganteum*, a tall-growing variety 18in high; the umbels large, bearing dark rose-coloured flowers.

Societies.

Royal Horticultural, Drill Hall, January 26th.

The meeting on Tuesday last was bright and interesting. At three o'clock Mr. H. Somers Rivers gave a lecture on cultivated Oranges.

Floral Committee.

Two firms staged "the market pink" *Chrysanthemum*. *Mdlle. Louise Charvet*, the flowers being large, full, fresh, and bright. The colour is rose pink with a creamy centre, making it a most excellent flower. The exhibitors' names were Henderson and Sons, Elmhurst Nursery, and J. W. Springbett, Holly Nursery, both of Cheshunt. Mr. W. Seward, of Hanwell, staged a really magnificent strain of large flowered floriferous *Cyclamens*, and Messrs. Sutton and Sons had a very effective display, filling half of one of the long tables (both sides). Their *Giant White*, *Giant Pink*, *Vulcan*, and *Salmon Queen* are amongst the finest of present-day varieties. They also had flowering plants of "Improved Reading Blue" *China Primula*, of good depth of colour.

Messrs. Cannell and Sons brought up from Swanley a large collection of *China Primulas* in pots, the plants being sturdy and strong, with large trusses and bold flowers. We would name their *Queen of Pinks*, *Swanley Blue*, *The Sirdar* (salmon), *Improvement* (scarlet crimson), and *Cannell's White*. The plants displayed remarkably good culture. They had fifteen vases with spikes of *Coleus thyrsoideus* in another part of the hall.

Mr. Godfrey, of Exmouth, Devon, was able on this occasion to show his late *Chrysanthemum*, "*Winter Queen*." Though loose in build, it is very pleasing, palest creamy colour.

Messrs. Cutbush, of Highgate, had fruiting *Orange* plants, which are exceedingly decorative in conservatories and dwelling-rooms, lasting in a presentable condition for months. They

also had *Rhododendron Jacksoni*, as standards, over 1yd high, in flower, the flowers being pink. Their *Carnation* flowers were a great treat at this time of the year, and represented the varieties Mrs. S. J. Brooks (white), *America* (scarlet crimson), *Lady Smith* (pink), and *Viscount Kitchener* (flaked red over white). They were further in evidence by an attractive group of hardy plants and shrubs. Here were displayed *Sternbergia Fischeriana*, *Iris histrio* and *histroides*, and the *Winter Heliotrope*.

Messrs. Veitch, of Chelsea, staged *Jacobinia coccinea* and *J. chrysostephana*, *Eupatorium vernale*, a greenhouse subject, with stout ribbed ovate-acuminate leaves, and branching heads of white flowers. Their *Cheiranthus Kewensis* (Wallflower), of a bronzy yellow colour, is showy for present decorations. There were also *Coleus thyrsoideus* and *Gesnera exoniensis*.

Lady Plowden, Ashton Rowant House, Wallingford, sent some beautiful sprays of *Chrysanthemum Polar Star*, a white, small-flowered, decorative variety. Lady Plowden also sent a group of *Lælia anceps* in pots: very creditable to Mr. Clark, the gardener.

Messrs. T. S. Ware, Ltd., staged a collection of hardy plants, including *Hellebores*, *Iris sidjarensis*, hardy *Cyclamens*, *Crocus ancyrensis*, and other species. "Floral-aid" came from Mr. C. J. Wakefield, 58, Hendon Street, London, S.W. Mr. Pattisson, of Farm Avenue, Streatham, showed his substantial and improved horse lawn-shoes. Messrs. Champion and Co., corner of Old Street and City Road, E.C., sent their ornamental and substantial "tubs for shrubs"; while Walters and Co., greenhouse blind manufacturers, 16, Water Lane, Great Tower Street, E.C., sent samples of their manufactures.

Orchid Committee.

Messrs. J. Veitch and Sons, Ltd., had some fine hybrid *Cypripediums*, including *C. aureum virginalis*, *C. x Euryades*, *C. x Chantino-villosum*, *C. x Catherine* (a lovely flower), *C. x Gertrude*, and *C. x Trollius*. They also had *Lælio-Cattleya Cappei* var. *aurea*, *Cat. Miranda*, and *Lælia Digbyano-purpurea*.

Mr. Colman (gr. W. P. Bound), from Gatton Park, Reigate, sent *Dendrobiums* and other orchids, filling the entire side of a table, and obtaining a gold medal. He also included *Cymbidium Hookerianum punctatissimum*, a noble subject, with green sepals and petals, and purplish spotted, tea coloured lip.

Hugh Low and Co., Bush Hill Park, Enfield, had *Dendrobium Wardianum*, *D. heterocarpum aureum*, *Cynoches chlorochilon*, *Oncidium ornithorhynchum*, *Cypripedium x Watsonianum*, *Lælia anceps Sanderianum*, and others.

Fruit Committee.

In order to illustrate the lecture by H. Somers Rivers, Messrs. Rivers and Son, of Sawbridgeworth, staged a collection of *Orange* fruits with a few bearing-plants in pots. The varieties shown were *St. Michael's*, *Excelsior*, *Tangerine*, *Egg* (A.M.), *Silver or Plata*, *Achilles*, *White Orange*, *Bittencourt*, *Embiguo* or *Navel*, *Brown's*, *Sustain*, also four large *Citrons*, and the *White Lemon*.

Mr. J. H. Goodacre showed from the Earl of Harrington's garden at Elvaston Castle six bunches of *Muscat of Alexandria* in excellent condition as regards colour, quality, size, and form. A silver Knightian medal was awarded. *Tomato Winter Beauty* was staged by Mr. Waddo, of Paddockhurst, Sussex. Mr. H. B. Westropp, The Lodge, Hydport, Maidenhead, staged a bunch of *Bananas*, which might possibly have had from 130 to 150 fingers.

Certificates and Awards.

Chrysanthemum Mdlle. Louise Charvet (Henderson and Sons, and W. J. Springbett, each of Cheshunt).—A late pink Japanese variety, with excellent qualities for market. A.M.

Chrysanthemum Winter Cheer (J. E. Hatton).—A bright rose-purple decorative Jap, with stiff stems and plenty of foliage. A.M.

Lælio-cattleya Myra var. *Charlesworthi* (Charlesworth and Co.).—Parentage: *Lælia flava* x *Cattleya Trianae*. There is no trace of *Cattleya Trianae* here. The sepals and petals are rich yellow, and the lip is dark crimson with yolk-coloured tube. A.M.

Cypripedium x Morteni (Mr. W. Appleton).—Parentage: *Cypripedium Lecanum* x *C. Chamberlainianum*. The lip is deep purple, the narrow petals sinuous edged, the dorsal sepal dark at the base and white at the tip. A.M.

Lælia anceps Schrödera Theodora (Mr. F. Wellesley).—The petals are nearly oval and 1½in. broad in the centre. The apex is acute and slightly acuminate. The apex of lip is dark velvety crimson; a bold fine flower. A.M.

Orange, the "Egg" (Rivers and Son).—A variety of cultivated *Orange*, which received an A.M.

Medal Awards.

ORCHID COMMITTEE.—Gold Medal to Jeremiah Colman, Esq. Silver-gilt *Flora* to Charlesworth and Co. Silver *Flora* to Jas Veitch and Sons. Silver *Banksian* to Lady Plowden, Oxon.

FLORAL COMMITTEE.—Silver *Floras* to Sutton and Sons; Veitch and Sons; Mr. W. Seward, Hanwell; Cutbush and Son;



Dodecatheon Meadia (dark) and variety.

and Cannell and Sons. Silver Banksian to John Russell, Richmond.

FRUIT COMMITTEE.—Silver-gilt Banksian to T. Rivers and Son, Sawbridgeworth. Silver Knightian to Earl of Harrington, Elvaston Castle, Derby.

Gardeners' Royal Benevolent Institution.

The annual general meeting was held on January 21, at Covent Garden Hotel, London, and was fairly well attended. Mr. Harry J. Veitch, treasurer, presided, and the following report and statement of accounts as audited, were read and unanimously adopted:

REPORT OF THE COMMITTEE FOR 1903.

In presenting their annual report and statement of accounts (as audited) for the year 1903, the committee have the pleasure of again congratulating the members and subscribers of the Institution on its continued success and increased usefulness in affording relief both of a permanent and temporary nature to those who, through sheer misfortune, due to accident, ill-health, old age, and reduced circumstances, have been compelled to apply for its assistance in their time of need.

At the beginning of the year, 204 persons—being fourteen more than at the corresponding period in the previous year—116 men and 88 widows were receiving life annuities of £20 and £16 respectively. Of this number, during the year sixteen have died—nine men and seven widows. Six of the men left widows, whose cases were such as to warrant their being placed on the funds for the widow's annuity of £16, without election, and in accordance with Rule III. The committee have also reinstated on the funds a former pensioner, who had voluntarily relinquished his pension for the time being on account of his altered circumstances. There were thus at the close of the year 192 pensioners on the funds, and the committee recommend an election this day of twelve additional pensioners to fill the vacancies created.

They much regret that in view of the present income, and having regard to prudence, they are unable to recommend the election of a larger number, the more so as the list of candidates shows so large an increase on that at any previous election, but they would remind the subscribers that no less than twenty-eight additional pensioners were placed on the funds in the Coronation Year (1902), which materially added to the liabilities of the Institution.

The special funds, viz., the "Victorian Era Fund" and the "Good Samaritan Fund," are, happily, still a source of incalculable benefit and help. From the former fund, £135 10s. has been distributed during the year to the unsuccessful candidates who had previously been subscribers, in proportionate amounts, according to the number of years they had subscribed; and from the latter fund, which is for the assistance of subscribing and also not-subscribing applicants, no less than £81 has been awarded in temporary assistance in cases of urgent need, many of which were of a particularly distressing and pathetic character. The grateful letters which have been received from the recipients of aid from these special funds, as well as from the general fund, show how much the help was needed and how greatly it was appreciated.

The committee would also refer to the generous and thoughtful kindness of Mr. N. N. Sherwood, a trustee and member of the committee, who at the last election presented each unsuccessful candidate, who had been a subscriber, or the widow of such, with the sum of £5. Mr. Sherwood's generous liberality proved most acceptable and was greatly valued.

The annual festival dinner, which took place in June, under the presidency of the Right Honourable the Earl of Warwick, was very successful, and resulted in a substantial sum being raised in aid of the funds, and the committee are much indebted to his Lordship. They also take this opportunity of tending their best thanks to the stewards, collectors, donors of flowers, the Horticultural Press, and to other friends and helpers throughout the country, who in any way, either directly or indirectly, contributed to the success of the festival. The committee have likewise to express their grateful thanks to the Earl of Ilchester for kindly allowing his beautiful gardens at Holland House to be opened—on the occasion of the flower show of the Royal Horticultural Society—to the public, part of the proceeds obtained therefrom being handed over in aid of the funds of the Institution.

The several auxiliaries, viz.: Bristol and Bath (hon. secretary, W. J. Harris), Worcester (hon. secretary, Mr. Percy G. White), Devon and Exeter (hon. secretary, Mr. W. W. Mackay), Wolverhampton (hon. secretary, Mr. R. Lowe), Reading (hon. secretary, Mr. H. G. Cox), and Liverpool (hon. secretary, Mr. R. G. Waterman), still continue to be a source of strength and much support to the Institution, both financially and by creating a wider interest in the work, and the committee gladly record their gratitude to the hon. secretaries and local committees for their kind and much-appreciated services.

It is with deep regret the committee have again the melancholy and sorrowful duty of referring to the many losses amongst the

friends and supporters of the Institution they have sustained during the past year—losses which will be severely felt, and vacant places it will be difficult to fill. Nevertheless they feel confident that the friends of the Institution who remain will not relax their efforts, but will use their utmost endeavours to fill up the gaps in the ranks of those who so kindly and generously assisted to maintain the work. There are at this election no fewer than fifty-three applicants, and if only twelve are elected, forty-one must perforce, beyond what assistance may be afforded from the special funds, to which allusion has already been made, wait for another year before they can again apply for the aid they seek.

Their cases are most sad, and the committee sincerely wish it were in their power to at once grant them, or at least some of them, that permanent assistance for which they plead, and of which they are so much in need. The committee, therefore, whilst thankfully acknowledging the help afforded them in the past, very earnestly appeal to all friends and wellwishers for their co-operation in obtaining additional support for this national horticultural charity so as to warrant an enlargement of its beneficent objects on behalf of those, in their days of need, who in their time have done their best to minister to the pleasures and necessities of others.

BALANCE-SHEET, 1903.

To Balance	£1621 19 0
„ Amount on Deposit	3165 10 0
„ Annual Subscriptions	£1580 11 3
„ Festival Dinner	2049 17 3
„ Return of Income Tax	63 1 0
„ Advertisements	55 12 0
„ Dividends and Interest	568 10 3
	<u>4617 11 9</u>
	£8805 0 9
By Pensions and Gratuities	£3716 6 8
„ Expenses of Annual Meeting and Election	12 8 9
„ Rent, Cleaning, Firing, Light, &c., and Secretary, and Clerk's Salaries	515 0 0
„ Printing, including Annual Reports, Polling Papers, &c.	£103 7 3
„ Stationery, including Cheque Books	26 18 11
„ Advertisement in Fry's Charities	3 3 0
„ Festival Dinner Expenses, £174 2s.; less Dinner Charges, £109 4s.	64 18 0
„ Postages, including Reports, Appeals, Voting Papers, &c.	53 0 4
„ Travelling Expenses	3 7 4
„ Carriages, Telegrams, Repairs, and incidental Expenses	7 17 10
„ Bank Charges	0 6 4
	<u>267 19 0</u>
Amount placed on Deposit	3265 10 0
Balance with Treasurer	1022 3 10
Balance with Secretary	5 12 6
	<u>1027 16 4</u>
	£8805 0 9

VICTORIAN ERA FUND, 1903.

Balance, December 31, 1902	£139 4 10
Donation, 1903	5 5 0
Dividends, 1903	122 17 6
Return of Income Tax, 1903	8 1 9
	<u>137 4 3</u>
	£276 9 1
Gratuities, 1903	135 10 0
Balance, December 31, 1903	140 19 1
	<u>276 9 1</u>
	£276 9 1

GOOD SAMARITAN FUND, 1903.

Balance, December 31, 1902	£208 13 7
Annual Subscriptions, 1903	1 1 0
Donations, 1903	65 14 0
Dividends, 1903	55 1 0
Return of Income Tax	3 19 9
	<u>125 15 9</u>
	£334 9 4
Gratuities, 1903	£81 0 0
Balance in hand December 31, 1903	253 9 4
	<u>334 9 4</u>
	£334 9 4

(Signed) THOMAS MANNING.
T. SWIFT.
J. WILLARD.

The election of pensioners was then proceeded with, and at 5.30 p.m. the poll was declared in favour of the following candidates:—1, Henry Cross, 3,923 votes; 2, Wm. Chambers, 3,545; 3, Abram Stansfield 3,444; 4, Frederick Smith, 3,300; 5, Eliza E. Doherty, 3,297; 6, Richard Nisbet, 3,224; 7, Jane Edwards, 3,186; 8, Henry Rabbits, 3,091; 9, Wm. Turner, 2,966; 10, James Worthington, 2,955; 11, Richard Skinner, 2,902; 12, Ed. Foster, 2,842; 13, Andrew Armstrong, 2,838; 14, Geo. Dale, 2,796.

The two last were placed on the list to fill the vacancies caused by two deaths since the voting papers were issued. Mr. Arthur W. Sutton generously offered to find the year's pension for another candidate, and as the next highest on the list, Wm. Smith, with 2,784, was elected; while lastly, the committee have the power, under Rule III., clause 10, to place one pensioner on the list who may have failed to be elected; and on this occasion they chose T. H. Cridland, who is totally blind, and has

been trying for seven years to get the pension of £20. His case proves the value of beginning to subscribe early in life to the funds. A man subscribing one guinea a year for thirty years would have 3,000 votes to his credit, which would be sufficient to carry him through. Twenty-eight papers, representing 200 votes, were lost through being unsigned; and three papers were spoilt by the voters giving more votes than they possessed.

The Reading and District Auxiliary contributed £109 during the year; Bristol and Bath, £105; and Worcester and district, £75. The officers of the Institution were re-elected for the ensuing year.

Annual Friendly Supper.

This followed immediately after the business meeting, with Mr. Leonard G. Sutton in the chair. He was supported by Messrs. H. J. Veitch, W. Sherwood, Geo. Bunyard, N. A. Bilney, Geo. Paul, Arnold Moss, Geo. Monro, Peter Veitch, S. T. Wright, W. Roupell, J. McIndoe, P. Kay, J. Assbee, R. P. Ker (Liverpool), Mr. Vallance, and a numerous company.

Mr. Sutton was an ideal chairman, whose remarks were to the point and brief. He urged greater advertisement for the Institution, and thought that many of the amateurs could be reached through the Royal Horticultural Society's Journal, and by other means. He thanked the gardening Press for the willing help it at all times gave, and went on to show what good the auxiliaries were doing. At Reading nearly all the gardeners in the neighbourhood are helpers, and this might be followed elsewhere.

Mr. Harry J. Veitch also spoke, and concluded his remarks by soliciting the help of all of those there present, to rally to his support at the annual festival dinner in the Hotel Metropole on June 28 next, when he is to take the chair. He hoped the contribution list would beat all records.

Mr. Geo. Monro, in his few words, stated that there were now six auxiliaries, each doing important work. Since the Bristol and Bath was founded ten years ago, it had subscribed £951; Worcester in a little less period of time had sent up £750, and now Reading was seeking to outpace both by sending up so much as £110 last year. It had only been in existence a year or two. Mr. Monro thought there was a spirit of healthy rivalry afloat, at which his hearers smilingly applauded. Amongst other speakers were Messrs. Arnold Moss, Geo. Paul, and Vallance. Mr. Edward Monro gave a cornet solo during the evening, and there were some very fine songs by a lady and three gentlemen artistes.

Isle of Wight Horticultural.

ANNUAL MEETING.

Dr. Groves, J.P., presided at the second annual meeting of the above society at Warburton's Hotel, Newport. The annual report of the hon. secretaries (Messrs. Tribbick and Kime) showed that the past year's record was favourable and satisfactory, twenty-two new members having been added to the roll, whilst the monthly meetings have been very well attended. Financially there was cause for mutual congratulation in the fact that the society was in a solvent condition, and that in spite of heavy expenses in connection with the holding of the Sweet Pea Show they had a credit balance. The excursion to Ryde afforded much pleasure, and in conclusion hearty thanks were tendered to all who had lent assistance, to those who had read papers, who had staged plants, flowers, and fruit, and to the officers and committee. The balance-sheet showed a total on the receipts side of £9 9s. 10d., and a credit balance of 15s. 0½d. The report and balance-sheet, which were regarded as very satisfactory, were duly adopted. The excellent services of the hon. secretaries were heartily acknowledged in a special vote of thanks. Six new members were selected. Arrangements were made for a lecture by Mr. Shrivell, the well-known authority, on "Chemical Manures in Relation to Horticulture," at the Guildhall, Newport, on February 6, school teachers and others interested being invited. A social gathering followed, at which songs were well rendered by Mr. Wickens and Mr. Brett, and much-appreciated gramophone selections were given by Mr. J. Boxall.

Royal Caledonian Horticultural: Annual Meeting.

The annual general meeting of this society was held in Edinburgh on the 14th inst., Mr. D. P. Laird, vice-president, in the chair. The secretary submitted the report of the council,

which stated that, being satisfied with the result of having held the spring show last year in the third week of May, they had resolved to hold the spring show of 1904 at the same time of the month. The net gain in membership during the year was 120. The report also referred to the five international exhibitions already organised by the society, and stated that the council were making arrangements for holding another international in September, 1905, at which they hoped to be able to offer about £1,500 in premiums. Advance particulars of some of the principal competitions are in preparation, and will shortly be issued. His Majesty the King has accorded his patronage to this exhibition, and has given a valuable silver cup to be awarded at it.

The abstract of accounts showed considerable improvement in the position of the society, the excess of income over expenditure for the year being £126 18s. 2d., and the funds of the society £928 5s., compared with £715 17s. 7d. at the close of the previous year, this result being attained without restricting the scope of the society's exhibitions. The prize money paid at the spring show amounted to £176 3s. 6d., and at the autumn show to £328 13s. 6d. The council report and abstract of accounts were approved of. The retiring president, Lord Balfour of Burleigh, was unanimously re-elected. Mr. W. H. Massie, nurseryman, was elected a vice-president in room of the retiring



Cherry, Early Rivers. (See page 77.)

vice-president, and Messrs. Daniel Kidd, The Gardens, Carberry Towers, Inveresk, Mr. James Grieve, Redbraes Nurseries, and Councillor Mackenzie, Edinburgh, were elected councillors in room of those retiring.

Hull: Hardy Herbaceous Plants.

On January 12 Mr. Picker, of Hesslewood, read a paper before the assembled members of the Hull and District Horticultural Society on the subject of "The Herbaceous Border." Although the subject chosen was a wide one, the speaker managed to compress a large amount of matter in a comparatively short essay. Prefacing his remarks with the truism—which, by the way, should be remembered by all gardeners—that it is impossible to do things too well, Mr. Picker touched upon the value of herbaceous subjects as compared with half-hardy bedding plants, and showed the wealth of resource to be found in the former class. Among the many eminently practical hints given might be mentioned a few. Stakes should be put to plants before being really required, and thus, while maintaining a tidy appearance, obviate the ugly practice of bunching. Hoeing should be performed not merely for the eradication of weeds, but to aerate the soil. Timely and fierce attacks should be made upon all marauders, from the too familiar slug to the highly unwelcome bullock. Let the herbaceous ground, when possible, be sheltered, but not deprived of sun. Trench deeply,

well breaking up the bottom. Mr. Picker advised good farmyard manure as the best top-dressing, and remarked that in splitting up plants such as Asters, Phlox, &c., the outsides should be used as being the younger portions. A reserve ground was also advised as being essential to renew plants, which, even under the best treatment, will unaccountably go off. Even the briefest synopsis of the able gardener's paper is impossible in the small space at disposal. The paper met with some criticism, but not of an adverse nature, and the vote of thanks accorded to Mr. Picker was of a very hearty character, high tribute being paid to his practical gardening abilities.—W. R.

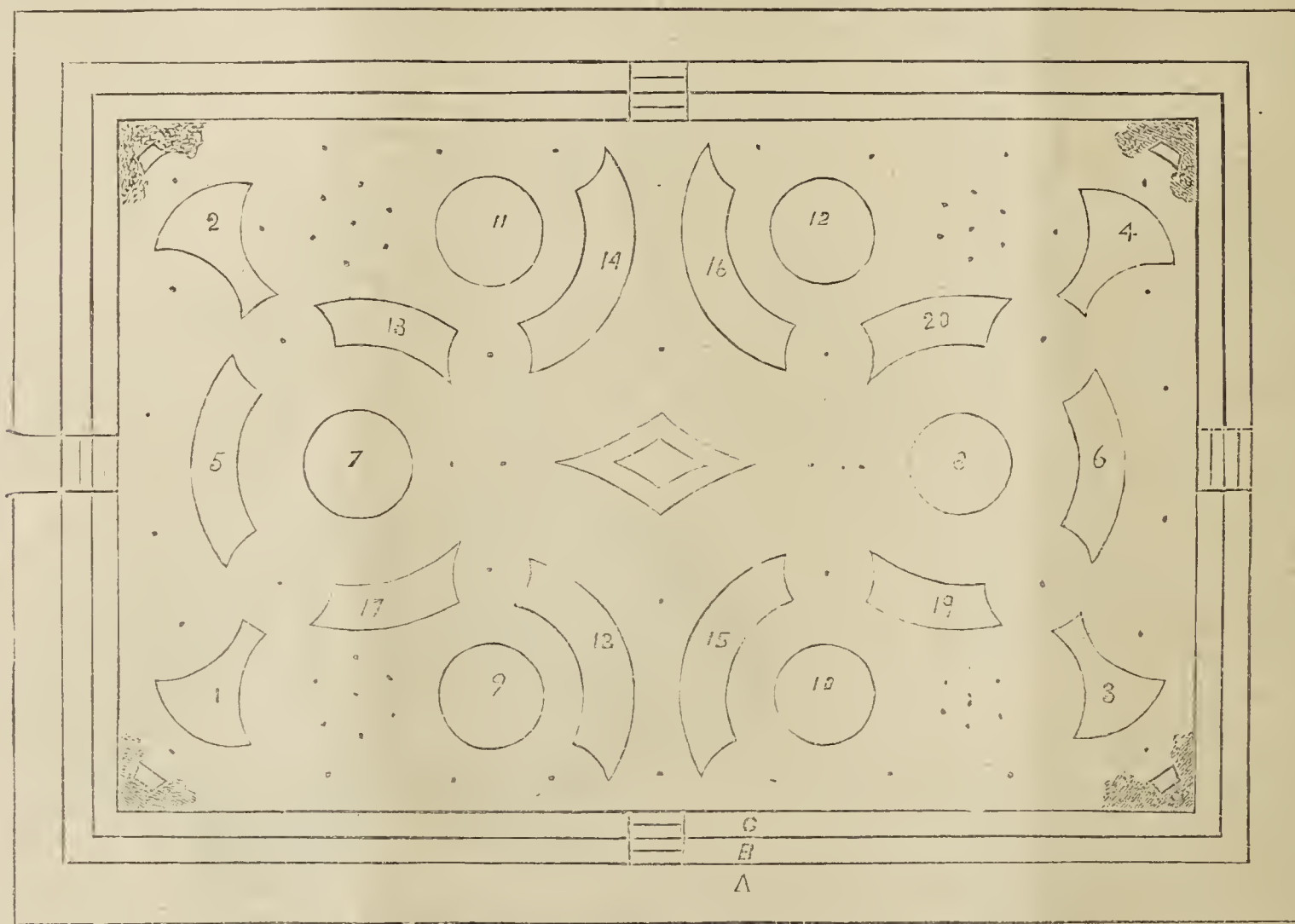
Cardiff: Lecture on Manurial Waste.

The opening meeting of the Cardiff Gardeners' Society for the new year took place at the Grand Hotel on Tuesday, January 12. Mr. H. R. Farmer, head gardener, Cardiff Castle presiding. A lecture entitled "A Meeting of Fruits and Vegetables, Protesting against the Waste of Their Food," was delivered by Mr. E. H. Battram, manager of the sewage farm, Abercynon (and for many years previous head gardener at Cyfarthfa Castle, once famous for

Beckenham: The Strawberry.

On Friday, the 15th, Mr. Lyne, of Foxbury, Chislehurst, gave a lecture before the Beckenham Horticultural Society on "The Strawberry." Mr. Lyne said that he had not prepared a written essay: he preferred to dispense with that, and in an extempore way detail his own practice without saying it was the best, but which certainly gives him very satisfactory results. The outdoor culture was first dealt with thoroughly, trenching and manuring being the first step. A special bed, expressly for the production of runners, was a further important step. These, layered into 5in or 6in pots, three in a pot, when ready are planted in their permanent quarters intact, 3ft by 2ft apart, and not to stand longer than three years. Mr. Lyne advised doing away with and planting an equal number annually. All cultural details were filled in as the lecturer proceeded.

The same advice for plants for forcing held good as to layers. Mr. Lyne prefers laying in triplets, advancing a saving of labour in watering, and the plants not so likely to suffer, if, through press of work, they have to stand over a short time, as they would do in smaller pots, and no ill results accrue from dividing



A Formal Rose Garden.

its supplies of garden produce). The lecture was rich in details regarding the waste of sewage, so often driven into the sea, polluting the waters, thus rendering the consumption of shell-fish dangerous in the extreme. All this could be avoided, Mr. Battram added, by turning it into better and more profitable account by constructing sewage beds. The lecturer pointed out various ways of preparation before returning it to the garden or land. A lively discussion followed, and numerous questions of varied importance were put to the lecturer. Mr. Basham, jun., fruit specialist, Basallog, in discussing the remarks of the lecturer, said that he was in a position to confirm what had been said in regard to the use of sewage applied to fruit in a prepared form, to be absolutely true, and even necessary towards successful fruit culture. When called upon Mr. Battram answered the questions in a genial and striking manner, to the satisfaction of a large assembly. The best thanks of the meeting were accorded Mr. Battram for his instructive and humorous lecture, to which he briefly replied, and thanked them for their courteous attention. Mr. E. W. Davy, gardener to J. J. Neale, Esq., Penarth (and who supplied the Chamberlain party with buttonholes and sprays of orchids recently), was awarded a first class certificate for orchid *Cymbidium Tracynum*, which carried a remarkably long spike of flowers.—JOHN JULIAN.

them at the final potting. Mr. Lyne urges that if forced Strawberries are a special requirement a small low house should be provided for them, results justifying the outlay. Mr. Lyne, jun. (who, by the way, is a grower of Strawberries for market), like a dutiful son accompanied his father, and supplemented his lecture with some extremely pithy and valuable remarks. Both gentlemen were the recipients of the hearty thanks of the meeting.—T. C.

Ipswich: Heating and Ventilating.

At the opening meeting of the session on January 7, Mr. C. H. Curtis, of the "Gardeners' Magazine," gave a lecture on "Kew Gardens: Their History and Attractions." The lecture was highly appreciated, and served to recall the pleasant excursion undertaken by the society to Chiswick and Kew three years ago. The second meeting, held on January 21, was devoted to the discussion of three important phases of indoor gardening, viz., "Heating, Ventilating, and Shading." Mr. Warner, engineer, of Ipswich, opened the discussion on heating, giving some very practical hints on hot-water apparatus and its management. The discussion on the remaining subjects was initiated by Mr. E. Creek, and sustained by Messrs. Cotton, Kedgely,

Tinley, Cobbett, Adcock, Southgate, and the chairman (Mr. A. Creek, The Chantry Gardens). The chairman exhibited a well-flowered Cyclamen, while Mr. Cotton brought from Goldrood Gardens some well-kept bunches of Mrs. Pince, Lady Downes, and Mrs. Pearson Grapes.

The remaining meetings of the session are as follows: January 28, annual meeting; February 4, "Floral Organs and Structures," by Mr. S. J. Batchelder, Lecturer on Botany, Ipswich Higher Grade School; February 18, "Timber Trees: Growth, Structure, Classes, and Geographical Distribution," by Mr. J. H. Murgatroyd, Manual Instructor, Ipswich Higher Grade School; March 3, "Stove and Greenhouse Ferns," by Mr. Bullard, from Notcutt's Nursery, Broughton Road, Ipswich; March 18, "Bacteria and the Disposal of Sewage" (Lantern Lecture), by Mr. H. B. de Bear, Ipswich Scientific Society.—E. C.

Croydon: Chrysanthemums.

An excellent attendance of members assembled at the Horticultural Society's Rooms, Sunflower Temperance Hotel, George Street, on Tuesday, the 19th, when the first of the new series of papers for the coming year was read by Mr. H. J. Jones, Ryecroft Nurseries, Lewisham, who took for his subject "Chrysanthemums," and for upwards of two hours he described in detail the cultivation of this popular flower. Mr. W. Turney, Station Road Nurseries, Croydon, staged well-grown Primulas, and Mr. P. F. Bunyard exhibited a variety, labelled the "Eclipse." Several new members were elected.

Reading: Small Borders for Fruit Culture.

The first fortnightly meeting of the Reading and District Gardeners' Improvement Association in the new year was held on the 18th inst., and was largely attended, Mr. W. Barnes, chairman for 1904, presiding. The subject for the evening was "A Chat on the Small Border System for Fruit Under Glass," and Mr. J. Woolford, The Gardens, Wokefield Park, in introducing the subject said that he did not condemn large borders, because he knew that excellent Grapes, Peaches, &c., were grown in them, but it was not absolutely necessary to have them to produce good, useful fruit for the table or even for exhibition, therefore, if you can obtain what you want in small borders why go to the expense of having large ones? A splendid discussion followed, the chief points raised being planting out from pots, feeding, enlarging the borders, shanking. Those taking part were Messrs. Blake, Barnes, Townsend, Exler, Fry, Bright, Bassil, Judd, Wilson, Neve, Hinton, Wicks, and Lees. There were several exhibits, Mr. H. Wilson, The Gardens, Lower Redlands, staging nine dishes of Apples (Small's Admiral, Gascoigne's Seedling, Bramley's Seedling, Duke of Devonshire, Wellington, Ribston Pippin, Beauty of Kent, Blenheim and Lane's Prince Albert); Mr. Wynn, The Gardens, "Samoa," Kendrick Road, two dishes of nicely coloured fruits of Sutton's Winter Beauty Tomato; Mr. F. W. Exler, The Gardens, East Thorpe, half dozen excellently grown plants of Cyclamens; Mr. J. Stone, purest white Christmas Roses; and Mr. F. Lever, The Gardens, Hillside, plants of Begonia manicata. A hearty vote of thanks was accorded to Mr. Woolford for his instructive paper and to the exhibitors. Several new members were elected.

The Metropolitan Public Gardens Association.

OPEN SPACES.—At the monthly meeting of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W., Sir William Vincent, Bart., vice-chairman, presiding, it was stated that Admiral the Hon. Sir E. R. Fremantle, G.C.B., had kindly consented to become a vice-chairman of the Association in place of the late Viscount De Vesci, and he was elected accordingly. It was decided to renew the offer previously made to lay out All Saints Churchyard, Poplar, provided the Poplar Borough Council would take it over and maintain it as a public garden. A letter was read from the Office of Works in reference to the Duke of York's School site, Chelsea, stating that due consideration would be given to the proposals made by the Association for preserving a strip with trees on the west side, and another strip on the north, when the time came for selling the site.

Clauses were read which the London County Council had, at the Association's suggestion, introduced into the General Powers Bill, to enable Metropolitan Borough Councils to plant and maintain trees in thoroughfares, and to contribute to the maintenance of public walks and pleasure grounds. Progress was reported with regard to schemes for acquiring eighty acres to add to Hampstead Heath, and for the planting of trees in Bedford Row, Lamb's Conduit Street, and elsewhere. A letter was received respecting Golden Square, and it was resolved to enquire whether it would be possible to secure it for public use, if adapted for that purpose by the Association. It was mentioned that the Association would be represented at any inquiry held by the Board of Education in respect of a scheme for acquiring Wycliffe Chapel and burial ground as a school site.

Ancient Society of York Florists.

The yearly general meeting of the Ancient Society of York Florists was held at the De Grey Rooms, Jan. 12. The committee regret they have to chronicle an adverse balance of £9 13s. 11d. on the year's working. The number of members who have paid their subscriptions is 753; the amount £191 14s., being an increase of £1 6s. The total receipts have been £627 18s. 9d., and the expenditure, £637 12s. 8d. The receipts for admission to the Chrysanthemum show were a little over £60 less than in 1902. A new departure with the society has been the Dahlia show. This was brought about by a number of the committee securing special prizes of plate and cash to add to those offered by the society at the fourth minor show, with which it was incorporated; and the guarantee by them of no loss to the funds of the society, a very good show was got together, and well supported. Mr. Geo. F. W. Owen was re-elected secretary. A grant of £80 for the prizes at the minor shows this year, and one of £200 for the Chrysanthemum show, were made.

Hertford Horticultural: Annual Meeting.

The thirteenth annual meeting of the Hertford Horticultural Society was held in the Council Chamber. The annual report stated that the committee could confidently report that during the year 1903 the society had made progress, its good work being demonstrated at the annual show. Three silver medals given for the highest number of six points were won by Mr. G. Gumbrell in the gardeners' class, with 33 awards; Miss F. Seawell in the amateurs' class, with seven awards; and Mr. F. W. Welch, in the cottagers' class, with 13 awards. Special certificates were also awarded to Mr. G. Gumbrell for a finely decorated table of fruit, Mr. W. T. Porter for a collection of Potatoes, and to Mr. George Paul for a collection of greenhouse plants.

The balance-sheet showed that the receipts on general account were £28 13s. 7d., and on the show account £118 17s. 9d. The expenditure on general account amounted to £19 14s. 5d., and the show expenses to £120 12s. 6d., leaving a balance of £7 4s. 5d.

It was decided to hold this year's show on October 26 and 27. With reference to the new allotments, the secretary said he had seen the town clerk on the matter. The Local Government Board had sanctioned the Corporation borrowing the money. There were several other matters to be settled, but he hoped that in about a month the allotments would be ready.

A Formal Rose Garden.

As will be seen by reference to the plan and mode of planting, the system is adopted of massing the very dark varieties together, such as the crimsons; also the deep pinks, pale rose colours, or white or very light Roses in separate beds, the groups being arranged so that the colours are seen to the best advantage, and that the due balance of the design is maintained. The central bed alone is planted in mixed colours, so that the surrounding beds are rendered more distinct. The beds are all on grass. The soil was taken out 3ft deep, and fresh soil, consisting of three parts of fine old turf and one part of decayed cowdung, was employed for the Roses. After the Roses were planted in February a good mulching of rich dung was given to the beds.

The Rose garden is 130ft in length by 88ft in width, the round beds being 9ft in diameter, and the segments of circles 4ft. A is a 6ft gravel walk all round. This walk is covered with an iron trellis 9ft high in the centre, and the trellis covered with climbing and other Roses. B is the border where the Roses are planted for climbing over the trelliswork. C is a grass sloping bank, so that the walk is about 18in higher than the Rose beds. The dots on the plan represent standard Roses. We would name a few of the varieties, taking the beds according to their numbers.—1, Général Jacqueminot, Beauty of Waltham, Maréchal Vaillant, &c.; 2, Paul Verdier, Duke of Edinburgh; Dupuy Jamain, Alf. Colomb, Field Marshal; 3, Sénateur Vaisse, Dr. Andry, Etienne Levet; 4, Mlle. Marie Rady, Exposition de Brie, and Star of Waltham; 5, François Michelon, La France, Mrs. J. Laing, Captain Christy; 6, Mme. Georges Schwartz and Baroness de Rothschild; 7, Duke of Edinburgh, Prince Camille de Rohan, Fisher Holmes; 8, Black Prince and some of the foregoing darks; 9, Mme. Lacharme; 10, Boule de Neige, Marjorie; 11, Mildred Grant, Bessie Brown; 12, Duchesse de Vallombrosa; 13, Beauty of Waltham, Victor Verdier, and Charles Turner; 14, Antoine Ducher, Ferd. de Lesseps; 15, Mlle. Marie Rady; 16, Exposition de Brie, Liberty, Countess of Oxford; 17, John Hopper, Anna Alexieff, Jules Margottin, Paul Neyron; 18, Her Majesty, Killarney, Perfection de Lyon; 19, Jules Margottin, Ed. Morren; 20, Baronne Prevost, Perfection de Lyon, and Frau Karl Druschki.



Hardy Fruit Garden.

BUSH FRUITS.—The pruning of these should be finished whenever the weather is favourable. An exception may be made in the case of Gooseberries, where it is found birds are very troublesome, delaying the work amongst these until later in the season. Should the bushes be infested with mossy growths some effort should be made to cleanse them, either by dusting them over during calm, moist weather with freshly slaked lime, or by spraying with a solution of caustic soda and pearl ash. Bushes which make weakly growths ought, if possible, to have an application of rotten manure; the ground should be neatly turned over at a sufficient depth to bury all but deeply rooted weeds, such as Dandelions, &c., being careful not to destroy the surface roots near the stems of the bushes in the operation.

RASPBERRIES.—There should be no longer any delay in getting these tied to wires or other supports. Digging deeply amongst these is opposed to good practice, as the chief feeding roots are destroyed in consequence. A heavy mulching of manure should be applied and allowed to remain, to be washed in by the rains. Young plantations may be made as required. For this purpose medium-sized canes should be chosen, which have a number of fibrous roots in preference to those of a large gross nature, these latter being usually but poorly furnished with roots.

STRAWBERRIES.—Old beds of these that have become weakly may be assisted by spreading rich manure between the rows, or, failing this, liquid manure will be found of benefit. Beds in good condition not needing mulching may be lightly forked over; annual weeds may safely be buried. Land for spring planting ought to be deeply worked and well supplied with manure.

WALL TREES AND ESPALIERS.—The necessary nailing and pruning of wall trees must receive attention. The work should not, however, be done during bitterly cold weather, as it cannot be satisfactorily performed. Owing to the continuous pruning back needful to maintain wall trees and espaliers in neat order, the side branches are apt to become—unless growing in very favourable soil and situation—prematurely worn and unfruitful. It is a good plan in such cases to bodily remove a branch here and there, and train in new growths in the places of those removed. There need be no fear as to the trees starting new growths if the treatment of the roots is generous.

STAKING NEWLY PLANTED TREES.—All standards should be at once staked immediately after planting, especially in exposed positions is this an important matter. If trees are left unsupported, and allowed to be blown about by the wind, the leverage of the stems prevents the roots from becoming established in the soil very much longer than would be the case if receiving attention at the proper time. Pieces of cloth or similar material ought to be placed around the stems to prevent cutting when twine is used, though, in spite of what has been urged in opposition to the use of hay bands, we have yet no better method of tying than with these. The supporting stakes should be three in number to each tree, arranged as a tripod, using a hayband to bind all firmly but not tightly together. This fastening will sustain the trees from whatever quarter a storm may come.—J. W., Newent, Glos.

Fruit Forcing.

VINES: EARLIEST FORCED IN POTS.—These will now require copious supplies of liquid manure, always tepid and never too strong. The nourishment is needed as soon as the Vines have made fresh growths, and then right along to secure well developed bunches and berries. When these are set, thin somewhat freely to induce fine berries, but not going to the extreme of making the bunches loose; compact, even-berried clusters are the most tempting. Maintain the night temperature at 60deg to 65deg, falling 5deg on cold nights, 65deg to 70deg on cold days, 70deg to 75deg when mild and dull, and on fine days ventilating at 70deg, but only a little, increasing the air with the sun heat to 80deg or 85deg, at which keep through the day from that source, closing in good time, and so as to run up to 90deg, then damping the paths and walls. Damping is also necessary in the early part of the day, and in the evening of fine days.

VINES STARTED AT THE NEW YEAR.—The buds are moving both evenly and strongly. Continue syringing the Vines twice a day until the bunches form, then discontinue it, and maintain the atmosphere afterwards in a genial condition by damping instead two or three times a day. Avoid syringing hot-

water pipes when highly heated, the vapour being different from moisture given out by cooler surfaces, and is a common cause of rusting of the berries. The temperature should be increased to 55deg at night, 60deg to 65deg by day, with an advance to 75deg from sun heat, gradually raising the heat to 60deg to 65deg at nights, and 70deg to 75deg by day by the time the Vines are in leaf. Ventilate carefully, early, and in accordance with external influences.

STRAWBERRIES IN POTS.—The weather, though mild, has been foggy and dull, therefore unfavourable for more than keeping the plants gently moving. Ventilation must be very carefully given to plants in flower, setting or swelling the fruit, as sudden and drying currents of cold air chill both the organs of fructification and the tender fruits, and they do very little good afterwards. When the air is cold and sharp, some hexagon netting placed over the ventilators admits of fresh air when it could not be otherwise admitted. Plants in flower should have air under or above them, so that it is warmed before it comes in contact with the tender fructifying organs. Have the atmosphere rather dry for a couple of hours each day, so as to insure conditions favourable for fertilising by a little extra heat if necessary, with freer ventilation. Fertilisation is easily effected with a feather duster, examining the flowers each day until there is a good crop set, after which remove all superfluous flowers, also surplus and deformed fruits. Water the plants in flower in the mornings of fine days, lifting the leaves and flowers with one hand so as to avoid wetting them, and keeping the water from the crown, as that frequently suffers through the frequent application of water and a close atmosphere. Afford liquid manure to plants swelling their crops, and maintain a genial condition of the atmosphere, with a temperature of 60deg to 65deg, with 10deg to 15deg rise from sun heat.

PINES.—The plants recently started into fruit will, if in good condition at the roots, produce strong suckers. When these are large enough to handle, all, except one to each plant, should have the growths checked by taking out the centre of those not wanted. As a supplementary batch to the autumn-potted plants, select others which have been wintered in 7in or 8in pots, choosing the most vigorous plants. The remainder of such plants ought to be reserved until the general spring potting, when they should be shaken out and treated like suckers. Provide fibrous loam with the herbage reduced, or if used fresh it should be placed where it can be heated to 140deg to 180deg, so as to kill the grass, and any contained larvæ, and when torn up, add about a pint of superphosphate, a quart of wood ashes, and a pint of soot to each bushel of compost. If the turf has been laid up it must be laid under cover some little time to become dried. Drain the pots moderately, but efficiently, dusting with wood ashes or soot to exclude worms, and keeping the plants well down in the pots, ram the soil firmly round the roots, leaving sufficient space for copious supplies of water being given when required. For Queens 10in pots, and 11in or 12in pots are suitable for varieties of more robust growth. A temperature of 60deg to 65deg will be sufficient for these plants, also for those potted last autumn, and 80deg to 85deg at the roots.

Plants in beds about to be started into fruit must not have the heat at the base of the pots over 90deg or 95deg, or their roots will be injured. If sufficient fruit be started to meet the requirements, later successional plants may be advanced slowly, they, with autumn-potted suckers, requiring careful watering, especially where the heat is supplied by fermenting materials.—G. A., St. Albans, Herts.

Kitchen Garden.

EARLY PEAS.—It will now be time to make a sowing of some approved dwarf Pea. A warm and well sheltered border should be chosen, and where the soil has been thoroughly broken up and exposed to the frost and wind. Before sowing the Peas should be coated with red lead. Place these in a tin and drop in a few drops of paraffin or sweet oil in order to cause the lead to adhere to the peas. If the weather is bright the trenches should be opened a few hours before sowing, as this will warm and dry the soil.

BROAD BEANS.—A planting of these should now be made. These should also be sown in a sheltered part of the garden, and where the soil has been well prepared. Give them a good coating with the lead; neither rook nor mouse will touch them. It will be wise to sow a little thicker at this early date than will be the case later in the season. This applies to all kinds of seeds to be sown now.

EARLY POTATOES IN FRAMES.—A frame should be planted at once, the bed having been prepared as advised for Asparagus. Care should be exercised to regulate the heat for these. The heat should be on the decline. Give the frame a sharp angle to the south in order to catch every ray of sun and light possible. It is astonishing the difference this will make in the growth of the plants.

PARSLEY IN FRAMES.—If there is any doubt about the supply of this indispensable vegetable, provision should at once

be made for keeping up a supply. Where the plants are still fresh and growing a frame may be placed over it; while more may be carefully lifted and placed in pots and deep boxes, and placed in heat.

EARLY CARROTS.—A sowing of Early Horn Carrots should now be made in a frame where a gentle heat can be maintained. The soil should be light and rich; 6in of soil should be placed on the heating material, and be made moderately firm. It is a great mistake to sow these thickly.

EARLY CELERY.—A small sowing of this should now be made. There is always a demand for early heads for flavouring. It is also now time for a start to be made where intended for exhibition. Do not hurry the seedlings in a high temperature. Allow the seed to germinate slowly; a temperature of 50deg is quite high enough. As soon as the seedlings are well above the soil, place the box or pans as near the glass as possible. Admit air freely as the plants become strong enough to bear it. Celery should not receive a check under any circumstances, as this is often responsible for early bolting.

DIGGING AND TRENCHING.—All ground should be deeply dug, or, better still, trenched, as it becomes vacant. Where it is intended to plant Peas the ground should be deeply trenched. This, however, should be carefully done, taking care not to bring too much of the crude subsoil to the surface. The subsoil should, however, be broken up deeply in order to aerate and sweeten it.—A. T., Cirencester.

The Flower Garden.

SPRING FLOWERING BULBS.—A little attention given to the borders when bulbs are beginning to push through the soil will be amply repaid by their strong and healthy growth afterwards. Stirring the soil among them and breaking the crusty surface will be of great benefit, but the soil should not be trodden upon more than necessary at this period; indeed, it is well not even to hoe or move the surface except when crumbly or dry. Clumps of bulbs which have been established for several years will be benefited by a mulching of soil and artificial manure. This will greatly invigorate them and add to the beauty of the flowers. Recently planted bulbs will not need this, the ground before planting being dug and enriched. A light dusting of soot, however, round the bulbs will tend to ward off slugs from attacking the growth during the present period of slow growth. Snowdrops and Winter Aconites are beginning to brighten up the borders in sheltered places, and the blooms being the first of the season, show to the best advantage when the surroundings are neat and fresh.

SHRUBBERY BORDERS.—The accumulation of leaves, weeds, or other rubbish between shrubs and plants must be dealt with in order to give a neat and tidy appearance to the borders. If the leaves cannot readily be forked or dug in, the next best plan is to rake them off, and convey to the rubbish heap for burning. The soil ought to be top-dressed with mould or short dung, in shrubberies, to make good the loss from the carting away of the leaves. It is as well to complete the work of forking as soon as possible now, as many of the hardy bulbs will commence to push. Where there is any extent of vacant ground not occupied by any plants at the present time, this should be deeply dug and manured, so as to be available for spring and summer planting.

DIGGING AND MANURING FLOWER BEDS.—Possibly not all the flower beds are occupied with bulbs, shrubs, or spring flowering plants, so the opportunity may be taken with these to thoroughly dig and manure them. The subsoil should be well broken up. Soil of an adhesive character should have gritty material mixed with it, and soil that is poor and sandy have the addition of strong, rich loam. In forming new beds, after removing the turf, take out the soil two spits deep, and the subsoil should be well broken up, incorporating with it leaf soil or decayed manure. The same kind of material may be mixed with the surface soil as it is returned to the bed.—E. D. S., Gravesend.

Trade Catalogues Received.

D. M. Andrews, Boulder, Colorado, U.S.A.—Wholesale Catalogues—1, *Plants, Shrubs, Hardy Mountain Cacti*; (2), *Rare Seeds*.

Blackmore and Langdon, Twerton Hill Nursery, Bath.—*Begonia Catalogue for 1904*.

Chas. W. Breadmore, Royal Wincchester Seed Establishment, 120, High Street, Wincchester.—*Seeds*.

Clibrans, Altrineham.—*New Chrysanthemums*.

F. C. Edwards, Warehouse Hill, Leeds.—*Seeds*.

W. Baylor Hartland, The Royal Victoria Seed House, Cork.—*Seeds*.

F. C. Heineman, Erfurt, Germany.—*Seeds*.

J. Lambert and Sons, Treves, Rhine Province, Germany.—*Seeds*.

A. Perry, Hardy Plant Farm, Winchmore Hill, London, N.—*Sale List of Plants*.

Trade Note.

An Ipswich Seed Firm.

Messrs. Thompson and Morgan, of 5, Carr Street, Ipswich, has been established nearly half a century, and are one of the best known firms in this eastern portion of England. We have received their seed catalogue, which we find to be alphabetically arranged, concise, and very useful. Cultural hints are furnished, and the front pages contain the novelties for 1904.

The Weather.

An Inch of Rain.

For every 100th of an inch a ton of water falls per acre.

Dense London Fog.

A sudden and peculiar fog rolled up from the river and spread along the streets like volumes of smoke on Friday evening of last week. Pedestrian and vehicular traffic were rendered dangerous on account of the density and the suddenness, and the fog continued till about six o'clock on Saturday evening. The new flare-lights adopted by the L.C.C. were in operation at some of the London crossings.

Rainfall at Castlemilk Gardens, Lockerbie, Dumfriesshire.

I herewith enclose the record of rainfall taken in our gardens for the year 1903. For the last eighteen years our average rainfall here is 38.84in; and, with the exception of the years 1897 and 1900, with 50.24in and 50.10in respectively, none of the eighteen years can come within 14in of the rainfall this year.—JAMES TROUP, gardener.

	Inches.		Inches.
January	5.73	August	5.00
February	4.85	September	4.50
March	7.19	October	10.09
April	1.90	November	2.97
May	3.50	December	3.69
June	1.55		
July	5.00	Total	56.37

At Hamilton N.B.

If the previous week was notable for its stormy character, last was remarkable for its mildness. The atmosphere was heavy and dull, and the temperature abnormally high for the time of year, falling from 50deg during the day to 35deg and 40deg at night, a state of matters which made any unusual exertion extremely unpleasant by its consequent flow of perspiration. At present this condition exists, and the air is perfectly still; but a shade colder than during the rest of the week. The sky is heavy and overcast, as though it might result in snow.—D. C.

Notes from Newton Mearns, near Glasgow.

As forecasted in my last report, we have had a week of open weather. After such a long spell of wet weather and frost intervening, garden operations have commenced in full swing, and delayed planting has now been overcome. We have been fortunate in now having fine, dry soil to have planting done. It is seldom we have such climatic conditions for planting in January. Should the mild and dry weather continue for a few days to come, we shall have all alterations carried out, and, after all, we shall not be so late as we anticipated some time back.—N. R.

Royal Meteorological Society.

The annual general meeting of this society was held on Wednesday, the 20th instant, at the Institution of Civil Engineers, Great George Street, Westminster, Capt. D. Wilson-Barker, F.R.S.E., president, in the chair. The report of the council, which was read by the secretary, described the work carried out by the society during the past year, and showed that there was an increase in the number of Fellows. One remarkable feature was that out of the thirteen deaths reported, four of the Fellows had reached the great age of ninety-two or more years. The Symons gold medal for 1904 was awarded to Hofrath Dr. Julius Hann, of Vienna, in consideration of his eminent services to the science of meteorology. Count L. Szichenyi, first secretary to the Austro-Hungarian Embassy, attended and received the medal on behalf of Dr. Hann. The president in his address dealt with the present condition of ocean meteorology, and began by referring to the early workers in meteorological science, Lieut. M. F. Maury in America, and Admiral R. FitzRoy in England; also to the address on the same subject delivered to the society by Dr. R. H. Scott, F.R.S., in 1886. He then sketched the present state of our knowledge, illustrating his remarks by numerous maps. He reviewed the meteorological work of different nations, pointing out the energetic action of the United States in particular and of Germany and England. He regretted the want

of liberality shown by the Government in affording financial aid for the development of this important science; and, in conclusion, he urged the necessity of interesting the youth of the country in the matter by making it a special subject of school and college curriculum. At the conclusion of the meeting the officers and council for the ensuing year were elected.

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible, with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

At 'Em Again.

"You can't let 'em alone." Guilty, my friend, to your soft impeachment. Says he, "It's no good preaching to 'em." Says I, "Is that so?" Well, many men, many minds, and to my mind repeated hammering is bound to make an impression at last. Somehow, that friend's opinion is insinuating that the gardening race is degenerating. From my own observation I conclude, and believe, that the young gardeners of to-day are a superior lot to their prototypes of the past (and mind, young fellows, judging from the advantages you have, as well as from signs of the times, I must go farther by saying that you ought to be, and have every need to be). It is a fact, nevertheless, that they are just as liable to make the same mistakes that their predecessors made, and to penalise themselves by purchasing in the dear school of experience those lessons which are offered to them free. I know, of course, that some will shelve the matter I am approaching by putting off to a more convenient season—three words which can be spelt in five letters, viz., never.

Now, as remarked, our boys, in seizing the advantages which the liberality of modern thought accords to them, are, from my observation, superior in many ways, but not in every way; mark that, although there is no reason why they should not be so; mark that, too. For young fellows to write articles for a gardening paper was a thing undreamt of in my bothy days, and here we have not only a young gardeners' domain, but young gardeners writing sound, practical articles upon the cultivation of plants which many head gardeners of yore—and some of to-day, too—might envy. This is exceedingly good so far as it goes, but they and their domain do not go far enough to please or satisfy me. It is of their own cultivation one is anxious to know something about; although, as a matter of fact, their writings say something for that.

I want, however, to go farther. I want to be personal, to ask them straight, in extending the boundary of the young gardeners' domain, to include themselves and let us old heads, who take an active interest in their welfare, judge by some little personal items whether our preaching is really in vain. I myself am anxious to know whether any of our young fellows have considered the matter of the Post Office Savings Bank, recently brought before them, and what conclusion they have come to upon it. "If youth but knew what age would crave, how many a sixpence it would save!" If those who have started this little account with His Majesty would say so (under a non-de-plume, of course), the force of example, which is a great moral power in the bothy, would be very helpful; for as well as feeling it our duty to help the lads, it is their duty to help themselves, and, noblest of all, to help one another. To know, moreover, definitely that they are doing something in this matter, with other things more immediately concerning their personal welfare, would be distinctly encouraging to their friends and well-wishers, one of whom is, of course—AN OLD BOY.

English Gardeners v. Scots.

In the Journal for January 7, page 17, I was much amused to read the following question: "Why are Scots gardeners preferred to English?" Now, my masters, I do not wish to say anything against Scots gardeners, but my ideas are that the old request, which sometimes was for a Scots gardener, is now a thing of the past. It is many a long day since I saw such a statement, and there are plenty of thorough good English gardeners who can hold their ground against all nationalities or countries, and it is quite probable where a Scotsman has been in request—it has been for a Scotch family of the Thistle tribe.—A. J. L., South Oxon.

For the past thirteen years I have been employed in large gardens in England, Wales, and Ireland, but so far (to my regret) I have not crossed the Border, although I was within thirty miles in my last situation. I cannot agree with "Scot," and regret it has been his lot to fall in with such a bad set in English bothies. I have lived with five in a bothy in Derbyshire, the other in Northumberland, the others were smaller bothies, and I can safely say that the majority in each case were teetotalers or very moderate drinkers. My opinion of the smoking and lunch is that they are bad habits, and should be avoided. Fore-

men should show those under them an example in that respect. This is my second place in Ireland, and I will give facts concerning it. Four years ago Scotsmen were the only men employed, but, owing to their drunken habits, were expelled wholesale, and now there is not one employed here, although the gentry are Scots themselves. I read "Scot's" letter to our head gardener for opinion, and inquired what Scottish bothy life was like. He said that there was far too much drinking done there, to his sorrow; and he thought "Scot" might have pulled the beam out of his own eye before trying to remove the moat out of the Englishman's. I think he should know, having spent eighteen years in some of the best gardens in North Britain.

In conclusion, I hope the letters by "Scot" and "English Foreman" will be a help to the young men of to-day, and I trust they will try to throw off what bad character they may possess, and, as the year advances, that they may improve in their habits. There are several good places in this locality, and I am pleased to state the three countries are represented in the bothies, and one of the finest fellows is a Scotsman, who is loved by all, including myself. In reference to "Scot's" question, "Why are Scotsmen preferred?" I think, if I mistake not, it is now a thing of the past, for one rarely sees it now in advertisements. Some few years ago they were considered the best gardeners, but of late others have proved just as good. Does "Scot" know the old saying, "Once get the name of an early riser, and then you can stay in bed until breakfast time"? Occasionally preference is expressed for English or Irish, so the game is not one-sided. I hope "Scot" does not think it is all for merit, for England is highly represented in Scotland, and does itself credit; also sets examples for Scotties to follow. Bear in mind, "Scot," that it is "principle that makes the man, and not nationality."—ENGLISH FOREMAN IN IRELAND.

Notable Appointments from Kew.

Mr. Donald Macgregor, deputy foreman in the Temperate House, Royal Gardens, Kew, Surrey, has been appointed superintendent of the Parks and Open Spaces at Shanghai, China, and sailed last week. Mr. Macgregor began apprenticeship as a gardener at Killichassie House, Aberfeldy, Perthshire, where he served four years. He then became journeyman under Mr. Thomas Farquhar, at Langlee, Galashiels—a cosy little garden in that beautiful district, which was mentioned on p. 30 by "D." in his notes on "Larch and Scots Pine in Roxburghshire." He remained a year here, and then went to the West, to a place on the Clyde, and some time later he found a suitable sphere for his energies at Dalkeith Palace Gardens, where he remained for three years. He was, of course, under the late revered Malcolm Dunn, whose collections of trees and shrubs gave the young man ample opportunities to become well acquainted with their characteristics in Mid Lothian. Nor did he miss any chance of visiting the Botanic Garden at Edinburgh; indeed, he told me that except for the Sundays when duty bid him stay, he thought he had not missed one Sunday from "the Botanics" during his tenure at Dalkeith. At, and a little before that time (roughly, six or seven years ago) the young gardeners in and around the northern capital, were possessed of a keen spirit of rivalry and emulation in certain lines of study—horticulture, agriculture, forestry, botany, and agricultural chemistry—and, further, they established a Junior Horticultural Association, which was loyally supported by the Scottish Horticultural Association. However, that crop of gardeners—the young men of that particular period—found respectable situations in various parts of the kingdom, and a succeeding batch of like-minded fellows does not seem to have followed or since appeared, for the "Junior" died a natural death four or five years ago.

Mr. Macgregor attended some of the meetings, and he also made good use of the various classes provided at the Heriot-Watt College in Chambers Street. Here he had courses in elementary, and then advanced botany, also agricultural entomology, economic natural history, agricultural chemistry, and the principles of agriculture, winning the medal in 1900 for the latter two subjects. He also stood high in the other examinations.

Having been advised to "round-off" at Kew, his application was courteously received, and he was appointed in the herbaceous department, where in six months he was made deputy foreman, and then transferred to the Temperate House. In the course of study through which Kew gardeners graduate, Mr. Macgregor did well, being highest in systematic and geographical botany. He leaves Kew with the respect of everyone.

He was married at Edinburgh last week, and takes his wife to Shanghai with him. One of his first duties there is to lay out a recreation ground and park of forty acres, his assistants being all Chinese. The local government officials have hinted that he may occasionally have fairly lengthy trips up the Yang-tse river, when he hopes to be able to collect plants in order to establish a botanical garden embracing leading types of the native flora.

This is one of the best of recent appointments from Kew. Three were lately commissioned to Africa: Mr. F. S. Sillitoe, as head gardener to the Sirdar, the Palace Gardens, Khartoum, and Messrs. Dawe and Brown to botanic stations in Uganda. Verily, these men are "Empire builders."



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

ANALYSIS OF SOIL (A. N.).—If you are a Fellow of the Royal Horticultural Society you can have a soil analysed for a small fee by Dr. J. A. Voelcker, 22, Tudor Street, New Bridge Street, London, E.C.

SOIL FOR MIGNONETTE (T. Q.).—Mignonette prefers a rich, rather heavy soil, and a cool, moist situation. If sown in poor, light ground, and in a position exposed to hot sunshine, the seeds possibly will not grow at all, or if they do, the plants will be very inferior to those which can be treated more in accordance with their requirements. As a special compost for Mignonette the following is excellent:—Two parts loam, preferably from reduced turf taken off about 3in deep from a pasture of strong, loamy soil; one part dried cow manure; and one part of old sifted mortar rubbish. The latter ingredient is a most important one for this plant, and the addition of a little soot is also beneficial, well mixing together.

ERADICATING MOSS IN LAWNS (And.).—The mixture to which you allude as being given in the *Journal of Horticulture* in one of the numbers for the months of January, February, or March, 1898, was probably that used by the late Dr. Hogg as a good, safe, and simple lawn and pasture renovator, which consisted of 5cwts of superphosphate of lime and 1cwt of sulphate of ammonia per acre, applied in February or early in March, according to the weather. The mixture, however, was not used by Dr. Hogg for destroying moss, but for keeping the lawn in good condition, and in the field improving the herbage for stock. As a special mixture for your purpose it (five parts superphosphate and one part sulphate of ammonia) may be applied at the rate of 3½lb per square rod (30¼ square yards), or if very mossy and but little grass, double the quantity may be used. It will brown the lawn, or at least it will become so from the dead moss, but the brownness will soon disappear in consequence of the grass growing.

BOOK ON PLANT DISEASES.—LIST OF COLOURS.—SULPHATE OF AMMONIA FOR DESTROYING SLUGS (S. P.).—1. The book most likely to suit you is "A Text-book of Plant Diseases caused by Cryptogamic Parasites," by George Masee, F.L.S., which is published by Messrs. Duckworth and Co., London.

2. You will find a list of colours in "The Laws of Contrast of Colour, and their application to the arts of painting, decoration of buildings, mosaic work, tapestry and carpet weaving, calico printing, dress, paper-staining, printing, illumination, landscape and flower gardening," by M. E. Chevreul, and translated from the French by John Spanton; published by Messrs. G. Routledge and Co., London, in 1857. It is probably now out of print, but may possibly be had second-hand, if not from the publishers.

3. We are not aware of sulphate of ammonia having any special value for destroying slugs when applied alone, but it has considerable when mixed with salt in the proportion of two parts sulphate of ammonia and three parts ground rock salt, or "broad" salt, the mixture being applied at the rate of 5cwt per acre, 3½lb per rod, or 2oz (rather less) per square yard. It would not be wise to use it over tender seedlings, therefore should be applied in advance of sowing the seed, and, in the case of herbaceous borders, whilst the plants are dormant. Nitrate of soda two parts, and salt three parts is very effective against slugs and other ground pests, applying at the ratio before stated, always in advance of sowing the seed, and not in contact with seed. One of the best destroyers of slugs is lime water, about a peck of freshly burned lime being placed in a tub, thirty gallons of water poured on, stirred up, and allowed to remain for at least two days, then using the clear lime water by means of a fine rose watering-can after dark over the plants, just sprinkling them with the lime water and on the ground around, as in watering a bed of seedling plants. The lime water destroys the slugs it alights upon, and repeated occasionally is an effectual remedy.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (S. W.).—1. *Iris histrix*; 2, *Daphne Blagayana*;

3. *Selaginella Wildenowii*. (J. B.).—1. *Oncidium ornithorhynchum*; 2, *O. Forbesi*; 3. *Cypripedium Lathamianum*; 4. a hybrid *Dendrobium*. (F.).—1. *Hedera maderiensis variegata*; 2. *Phyllyrea microphylla*; 3. *Thuya gigantea*; 4. *Abies cephalonica*.

Covent Garden Market.—January 27th.

Average Wholesale Prices.—Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Jerusalem, sieve...	1 0	to 1 3	Onions, per case ...	5 0	to 5 6
Asparagus, Sprue, bundle	0 10	0 0	" per bag ...	4 0	5 0
" Paris Green...	4 6	6 0	" picklers, sieve	3 0	5 0
Beans, dwarf, per lb...	1 6	1 9	" English, cwt.	5 0	5 6
" Madeira, basket...	1 6	2 0	Parsley, doz. bnchs.	1 6	2 0
Beetroots, per bushel...	1 6	2 6	" sieve...	0 6	1 0
Brussels Sprouts, sieve	1 6	1 9	Parsnips, per bag ...	2 0	2 9
Cabbages, tally ...	4 0	5 0	Potatoes, per ton...	£5 0	85 0
Carrots, doz. bun. ...	2 0	3 6	" New Teneriffe,		
" per bag ...	2 6	4 0	" per cwt. ...	12 0	14 0
Cauliflowers, doz. ...	1 6	2 6	Radishes, doz. bun.	0 9	1 0
Celery, per doz. bun. ...	10 0	15 0	Rhubarb, per doz.	0 9	1 6
Cress, per doz. pun. ...	0 9	1 0	Salad, small, pun., doz.	0 6	1 0
Cucumbers doz. ...	8 0	12 0	Seakale, per doz...	12 0	15 0
Endive, per doz. ...	1 6	0 0	Shallots, per lb. ...	0 1½	0 2
Garlic, per lb. ...	0 2	0 3	Spinach, per bush.	3 0	3 6
Horseradish, foreign,			Tomatoes, English, doz lb	4 0	7 0
" per bun. ...	1 3	1 6	" Canary Deeps, lb.	2 0	3 6
Leeks, per doz. bun. ...	1 0	1 6	Turnips, doz. bun.	1 6	2 0
Lettuces, Cabbage, doz.	1 0	1 3	" per bag ...	2 0	2 6
Mushrooms, house, lb.	0 9	1 3	Watercress, per dozen		
			" bunches ...	0 4	0 8

Average Wholesale Prices.—Fruit.

	s. d.	s. d.		s. d.	s. d.
American Limes, 40C-500 in case ...	7 0	to 9 0	Grapes, Muscats, A., lb.	4 0	to 8 0
Apples, American, brl.	14 0	24 0	" " B., lb.	2 0	3 0
" Californian, case	7 6	10 6	" Canon Hall, A., lb.	2 0	8 0
Bananas, bunch ...	9 0	15 0	" Gros Colman, A., lb.	1 6	3 0
Chestnuts, bag ...	19 0	0 0	Lemons, per case...	12 0	0 0
Cobnuts, per lb. ...	0 7½	0 8	Lychees, box...	1 2	0 0
Cranberries, per case...	10 6	13 0	Oranges, per case...	5 0	17 0
Figs, per box ...	0 10	1 0	Pears, per case ...	6 6	8 6
Grapes, Alicante, lb. ...	1 0	2 6	" stewing, ½-sieve	4 6	7 6
" in barrel...	12 0	18 0	Pines, each ...	2 0	5 0

Average Wholesale Prices.—Plants in Pots

Most of the undermentioned plants are sold in 48 and 32-sized pots

	s. d.	s. d.		s. d.	s. d.
Acacia Drummondii, dz	15 0	to 18 0	Ferns in var., per. doz.	4 0	to 20 0
Adiantums, per doz. ...	4 0	8 0	Ficus elastica, doz. ...	9 0	24 0
Aralias, per doz. ...	4 0	8 0	Genistas, doz. ...	10 0	12 0
Arbor Vitæ, per doz. ...	9 0	18 0	Hyacinths, Roman (48-pots), doz. ...	8 0	9 0
Aspidistras, per doz. ...	18 0	36 0	Lycopodiums, per doz.	3 0	4 0
Aucubas, per doz. ...	4 0	8 0	Lily of the Valley, doz.	9 0	24 0
Azaleas, each... ...	2 6	3 6	Marguerites, white "	4 0	8 0
Begonia, per doz. ...	8 0	18 0	Orange Trees, each ...	2 6	10 6
" Gloire de Lorraine, per doz.	8 0	24 0	Palms, var., each ...	3 0	20 0
Callas, per doz. ...	12 0	18 0	Poinsettias, per doz...	8 0	12 0
Chrysanthemum, doz.	6 0	12 0	Primulas, per doz. ...	4 0	6 0
Colcuses, per doz. ...	4 0	5 0	Pteris tremula, per doz.	4 0	8 0
Crotons, per doz. ...	12 0	24 0	" Wimsetti "	4 0	8 0
Cyclamens, per doz. ...	10 0	30 0	" major "	4 0	6 0
Cyperus, per doz. ...	3 0	4 0	Solanums, " "	6 0	12 0
Daffodils, per doz. ...	7 6	9 0	Spiræas, doz. ...	6 0	9 0
Dracænas, var., doz. ...	12 0	48 0	Tulips, red, doz. roots.	1 0	0 0
Ericas, per doz. ...	8 0	18 0	" yellow, doz. roots.	1 6	0 0
Euonymus, vars., doz.	4 0	6 0			

Average Wholesale Prices.—Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Azaleas, doz. ...	4 0	to 6 0	Mimosa (Acacia), per		
Bouvardias, per bun. ...	0 4	0 6	" bun. ...	1 0	to 1 6
Callas, per dozen. ...	4 0	6 0	Narcissus, doz. bun. ...	3 0	4 0
Camellias, box ...	1 6	2 6	" Soleil d'Or, per doz.	5 0	6 0
Carnations, per doz. ...	1 6	4 0	Orchids, various, doz.	3 0	12 0
Chrysanthemums—			" Odontoglossums,	2 6	4 6
" doz. bunches ...	6 0	24 0	" Cypripedium in-		
Daffodils, bunch ...	0 9	1 0	" signe, per doz.	3 0	6 0
Eucharis, per. doz. ...	3 0	4 0	Pelargoniums, zonal,		
Ferns—Asparagus, bun.	1 0	2 6	" doz. bun. ...	6 0	8 0
" French, doz. bunches	0 4	0 6	Poinsettias, bun. ...	0 10	1 0
" Maidenhair, doz. bun.	4 0	6 0	Roman Hyacinths, per		
Freesia, per doz. ...	1 6	2 0	" bunch ...	0 6	1 0
Gardenias, box of 18-24			Roses, Mermet, per doz.	3 0	6 0
" blooms ...	2 6	4 0	" Various, per bun.	0 6	1 6
Lilac (French), bun. ...	3 6	4 0	" White "	1 6	2 0
Lilium longiflorum,			" Pink "	1 0	2 0
" doz. blooms	4 0	7 0	Smilax, per doz. trails	1 0	1 6
" lancifolium "	1 6	3 0	Stephanotis, per doz...	1 6	3 0
" auratum "	1 0	2 0	Tuberose, strong, bun.	1 0	1 6
Lily of the Valley, per			" doz.	0 2	0 3
" doz. bun. ...	6 0	24 0	Tulips, doz. bunches	6 0	12 0
Marguerites, yellow,			Violets, per doz. bun...	1 6	1 9
" per doz. bun. ...	1 0	2 0	" Parma, per bun.	3 0	4 0
Mignonette, per doz. ...	3 0	4 0			



What to Sow.

After such a season as that of 1903, a good year to a few, but disastrous to the many, it is but natural that farmers should be anxious about the varieties of seed corn which they will require for sowing in the coming spring. We fear that in too many cases the possession of damaged oats or barley, unsaleable except at very low prices, may tempt farmers to use it as seed, and so run a great risk of further loss.

On the other hand, others, hearing of high prices for barley being realised in especially favoured districts, may hastily adopt the opinion that the earliness and fine quality are due to the particular variety of barley instead of the soil, climate, or system of cultivation, and throw money away in giving high prices for grain which is more valuable for malting than for seed purposes. Do not suppose for an instant that we are disparaging the importance of sound seed. Soundness, by which is meant good germinating power, is the first consideration; the second, which is almost as important, is the change from a suitable soil. The third, and least important, factor is the choice of a variety, unless of course the intention is to grow seed grain, when it may have to take the first place.

A change of seed from suitable soil is of the greatest importance, for the finest malting qualities of barley are often the most disappointing when used for seed purposes. They are grown on early and warm soils, and produced perhaps almost to absolute perfection; but if sown on later, colder, and stronger soil will produce samples quite unrecognisable from the original stock. So long as the seed be of good germinating power and true to character, its appearance is quite immaterial. For use on medium soil over limestone we have purchased seed which was both dark in colour and thin of body; but it was pedigree barley, grown on fen land, and of guaranteed germination. The results were always satisfactory, both as to quality and quantity.

Fen land seed is suitable to all other soils, but especially to those with a limestone or chalk subsoil. It does well on sandy soil, but no better than seed from limestone would, so we should recommend a change from fen to limestone and then to sand.

But who is to buy seed from the sand? Well, no one! It should all go for malting except what is used for the pigs. Strong land seed does best on the fen land. Its growth is more robust, and the crop is less liable to lodge, a most important matter in fen-farming. We will repeat the changes we recommend, viz., fen seed for all soils; limestone and chalk seed for sand; and strong land seed for fen.

Having chosen the soil from which you will purchase your seed, the next question is the choice of a variety, of which you can procure a sound sample. As this may be a matter of difficulty this season, you had better not be too particular as to the kind if you can get a sound lot from the right soil.

As regards varieties, there are only two classes of barley, one being represented by sub-varieties of Chevalier and the other by Standwell and Goldthorpe. Of the Chevalier types, Wrench's Prolific and Major Hallett's Selected are the best, and of the others we much prefer Standwell. This barley has a fault which, properly used, may be turned into a virtue. It is very liable to neck off in high winds, but it does not neck until it is nearly ripe. To prevent necking it must be cut a little green, and that is where the virtue lies. The farmer anxious for the safety of his crops makes an early start with the reaper, and the result is good colour and early finish.

We have good reason for recommending Standwell barley, but only if you cut it early. It will stand cutting early, and you need not fear that the maltster will not buy

it. We have seen very excellent crops of Wrench's Prolific last season, and the yield was most satisfactory. Seventy quarters were easily threshed in a day, and the price was well over 30s. £100 for a day's threshing is more like old times. The best varieties of oats are not so easy to recommend, for so much depends on the soil and situation. Tartar King has been very successful on medium and light soil, and Garton's Abundance is still a favourite with many. Amongst black varieties, we do not think anything has been found to beat Major Hallett's selected black Tartarian.

It should be remembered that heavy oats such as the Abundance should be sown thickly. A good crop cannot be expected unless there is sufficient plant, and no less than four bushels should be sown. Few drills will put such a quantity on, but two bushels may be drilled each way, and a full, even plant assured. Some growers of Green Peas put their early seed in during October, but the majority sow in February. The old kinds, such as Sangster's, are not much grown now, for there are many superior kinds on the market. We believe that Daisy will prove a good market Pea, especially on good soils; but Prince of Wales, Telegraph and Stratagem are still indispensable in their season, and that old variety, Prizetaker, is difficult to beat on light and hot land.

Another new Pea which promises well for field culture is Laxton's Gradus. The straw is just the right length to prevent overcrowding, and both crop and quality are most excellent. The majority of field Peas are grown on wheat or barley stubble, and require in that course a fair dressing of spit dung. We should prefer to grow Peas after Potatoes which have been well grown. The remains of the dung and artificials, with the aid of a light dressing of nitrate of soda, will grow this crop to perfection.

Work on the Home Farm.

We have been writing of spring corn sowing, but much of the land will be unfit as a seed bed for a long time to come. So much of the turnip land was ploughed wet, and the little frost we have had exerted little influence on it. Yesterday we saw two pairs of horses ploughing turnip land in single file to avoid treading the surface. The soil was like glue, and nothing but the most favourable alteration of weather can make it into an even moderate seed bed. Wheat even could not be sown on such land in its present state.

The mention of wheat reminds us that we still have a plot of it to sow, and if the weather will hold up for another ten days we shall be able to get the seed in. We have not got the Potato ground ridged out yet, but hope to do so next week. It will be rough work, for the sod has decayed very little, and the soil has run together a little; but the work will tend to keep the land open to the weather, and that is everything in preparing for a Potato crop.

If kainit is to be used it should be got on as soon as the land is ridged. It is dearer to buy now than it would be in April, but would do a vast deal more good.

It is a great puzzle to farmers what to do for the best as regards the use of feeding stuffs. So many of us have one or more stacks of corn useless except for feeding purposes, and if cakes had remained dear we should have used this damaged grain as soon as it might be threshable. But cakes and other competing foods are all now at such reasonable prices that we are bound to pause and consider whether it will be wise to drop the use of cake, if we can realise our damaged grain at all. At any rate, if we have not too large a quantity of it, the pigs will consume it.

It is almost amusing to see the energy with which some farmers are deepening their hedgerow grips and cleansing drains which have not seen a spade for years. It is more than guarding the lost horse in this case, however, for there will be another to lose next summer unless they lock the door. If a thoroughly wet season is disastrous in other ways, we farmers learn many useful lessons from it, and we should make such note of those lessons that they may never be forgotten. A diary of striking agricultural phenomena is often very instructive reading in after years.

THE NEW POTATO BUG.—In conversing with an old friend recently anent the new Potato craze and fabulous prices obtained, the ancient scare raised by the Colorado Potato bug cropped up. However, he said this new bug, which is now affecting the noble tuber, eclipses the other by far. "New bug?" I innocently queried. "Yes; the Hum bug!" said he. It does, undoubtedly, for it has made things hum in Potatodom.—K.

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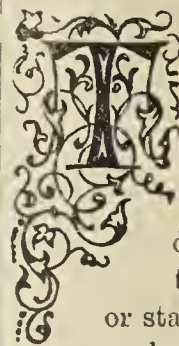
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Journal of Horticulture.

THURSDAY, FEBRUARY 4, 1904.

A Plea for Small Orchards.



RAVELLING swiftly through the
country, it is impossible for the
close observer to avoid noticing
the number of small places that
appear to be springing up in all
directions, now sparsely dotted over
the landscape in the rural districts

or standing in rather near proximity to
each other on the outskirts of crowded
areas. Compare some of these with the older
homesteads noticed by the traveller, and, while
allowing for their comparative newness, one is
forced to the conclusion that the old farm-
steads, for picturesque beauty and visual suit-
ability to their natural surroundings, are far
ahead of their spick-and-span neighbours, far
ahead of what they can ever hope to be.

The old farmhouses may not contain the com-
forts of these new and commodious residences,
but the appearance of many of them nestling
in their grassy orchards is far more restful and
pleasing than the new erections with their
diminutive fronts, and tennis courts, with
the rectangular lines of the latter striking
across one's vision with an almost unbearable
aggressiveness. A few Conifers dotted here
and there, with perhaps a straight border of
an indefinite muddle of herbaceous plants and
the usual glaring beds of "Geraniums," here is
the too frequent setting of the modern dwell-
ing—at any rate, of that aspiring to be some-
thing larger than a villa, and yet not sufficiently
pretentious for a mansion. What fruit planting
is done is usually on a small scale in the kitchen
garden, where, as a rule, every portion of avail-
able space is needed to obtain a sufficiency of
vegetables.

It is no part of our mission to condemn any
branch of gardening, rather the opposite; all
that is asked is that greater attention may be
given to the wisdom contained in the old saw,
"A place for everything, &c." The times call

READERS are requested to send notices of Gardening
Appointments or Notes of Horticultural Interest,
intimations of Meetings, Queries, and all Articles for
Publication, officially to "THE EDITOR," at
12, Mitre Court Chambers, Fleet Street,
London, E.C., and to no other person and to no other
address.

for a greater homeliness and less artificiality in our surroundings and everyday life; so far we appear to be progressing in the reverse direction. The individual here and there may say with truth that he can readily afford to buy the fruit he needs, but the nation cannot afford to do so—certainly not at the present heavy rate.

From grass orchards it is not usual to obtain the highly finished fruit seen on exhibition tables—this is not necessary—but by planting a few standards upon these severe and often out of place tennis courts, many more people would be able to grow a supply of fruit for the greater part of the year. Looking at the matter in an utilitarian spirit, this would be a great gain in the face of the heavy importations, which tend to increase rather than grow less as time goes on. But apart from any mundane aspect of the case these grass orchards appeal from quite a different standpoint, though this may, and probably is not the most important one.

In a pleasing homely fashion many of the farmhouses of the West of England have a most beautiful appearance, standing here and there amongst the clustering fruit trees. True it is, sadly true, the trees are frequently in but poor condition, neglected and ancient, and often bear low grade varieties. Yet the pictures of beauty these old orchards afford in springtime far surpass that of any of the most carefully laid out lawns and shrubberies.

Some of these fruit plantations are very large. These are not called for in the views here set forth; nearly all, owing to the calling of the occupants, are the resort of pigs and other lowly if useful company, and such companions as these, to say nothing of young colts, are scarcely an aid to reflection or an appreciation of the surrounding beauties. Many of the trees are veritable giants of perry Pears or cider Apples. It is not asked that the example of the planters of these be in any way followed, remarkable though some of them are for size and beauty.

Let it not be thought that there is the slightest wish for the curtailment of fruit planting for market over large areas of land. Let us grow all we can, even though at times the prices may rule low; for at such times it is hoped the poor of our large towns and cities may benefit. And let me here say that it is to be feared that only by producing large quantities at low rates can we hope to stem the ever rising tide of foreign supplies. It is asked that the fairly well-to-do, possessing suitable land, should plant at least a sufficient number of hardy fruit trees to supply their own needs. If planted in properly prepared soil, as advised so often in these pages, and in first-class varieties, the names of which are frequently given in the *Journal*, they will be found to give satisfaction and lasting pleasure far exceeding the choicest efforts of the landscapist's art.—COTSWOLD.

Professor Schlich on British Forestry.

Recently the governing body of the Royal Agricultural College, Cirencester, decided to establish a chair of Forestry at the College, and Mr. F. McClellan was appointed to the Professorship. At the opening of the new course in Forestry at the Royal Agricultural College, the inaugural address was delivered by Professor Schlich, the Hon. Professor of Forestry to the College. There was a full muster of the staff and students, and among others present were the Earl of Ducie, chairman of the governing body; the Earl of Onslow, President of the Board of Agriculture; Lord Estcourt, the Hon. Benjamin Bathurst, M.P., &c. At the outset of his lecture, Professor Schlich paid a warm tribute to the accomplishments of the new Professor of Forestry, Mr. McClellan, and to Lord Bathurst, who had placed his extensive woodlands at the disposal of the College for educational purposes. The Professor then proceeded:—

SOURCES OF TIMBER SUPPLY.

Before I proceed to deal with forestry in this country, let me say a few words about the sources whence this timber comes. In 1899 we received from Canada under two million tons; from other British possessions rather more than $\frac{1}{4}$ million tons—total of British possessions,

about $2\frac{1}{4}$ million tons; from foreign countries, $7\frac{3}{4}$ million tons—total, 10 million tons. The latter came from the following countries:—Russia, about $2\frac{1}{4}$ million tons; Sweden, about $2\frac{1}{4}$ million tons; Norway, about $\frac{3}{4}$ million tons; Germany rather less than $\frac{1}{2}$ million tons; France, $\frac{3}{4}$ million tons; United States of America, 1 million tons. But we are not the only importing country in Europe; on the contrary, most of them import timber. For example, Germany's net imports are $4\frac{1}{2}$ million tons a year; France, $1\frac{1}{4}$ million tons; Belgium, over 1 million tons; Denmark, nearly $\frac{1}{2}$ million tons; Italy, nearly $\frac{1}{2}$ million tons; Spain, nearly 1.5 million tons; Holland, 1.5 million tons; Switzerland, 1.6 million tons; and Portugal, Bulgaria, Greece, and Servia, smaller quantities. The exporting countries in Europe are Russia, with 6 million tons; Sweden, $4\frac{1}{2}$ million tons; Austria-Hungary, $3\frac{1}{4}$ million tons; Norway, 1 million tons; and Roumania, 60,000 tons. If you draw the balance of imports and exports for the whole of Europe, you find that there is a deficit of about $2\frac{3}{4}$ million tons a year, which are supplied by Canada, the United States of America, and smaller quantities from other countries.

ARE FUTURE SUPPLIES SAFE?

My reply is, "By no means." To begin with, the timber which we get from Germany is really only re-export, because that country has a net import of $4\frac{1}{2}$ million tons a year. It has been known for some time past that Norway is working her forests with a deficit (by cutting more than grows annually). Sweden was hitherto considered as solvent in this respect, but a Parliamentary paper just issued gives a different account. Sir W. Barrington writes from Stockholm to the Marquis of Lansdowne on March 18, 1903: "Recent calculations estimate the annual consumption of timber at some 1,060 million cubic feet, which is said to be about 106 million in excess of normal reproduction." Here, then, is another of our most important sources of supply also working with a deficit. As to Austria-Hungary, very little timber comes to this country, because half their export goes to Germany, and the bulk of the other half to various other countries, especially France. There remains, apart from a diminishing supply from Sweden and Norway, Russia. That country has enormous areas under forests, but it has still greater areas without it. Its population is rapidly increasing.

Differing views are taken of Russia as to her capabilities of maintaining her export of timber. Some experts say that her resources are inexhaustible, others doubt it. My own opinion, having weighed the evidence on both sides, is that Russia is a somewhat doubtful factor. At any rate, there can be no doubt that the demand is increasing year by year, and that other European countries must reduce their exports. Then, as to North America, the United States are no longer a real exporting country, because they import already more from Canada than they export. Thus we are reduced to Canada for making good the deficiency in Europe. That country is supposed to have about 266 million acres of timber lands, and she could, no doubt, supply the rest of the world with the necessary coniferous timber, if her forests were managed in a rational manner, instead of killing the goose that lays the golden eggs. There are peculiar conditions of the timber trade, and the great destruction wrought by forest fires, to be taken into account. In summing up this part of the subject, it may, therefore, be said (1) that we require enormous and ever-increasing quantities of timber, (2) that the prices in future are likely to be higher than in the past, (3) that supplies from outside rest on a very unsafe basis, (4) that the increase of the afforested area in this country, especially by utilising the waste lands, is sure to lead to an increased demand for labour.

STEPS TO BE TAKEN IN THIS COUNTRY.

It is clear, then, that we must look about and see what we can do for ourselves in these islands. A detailed examination shows that we have plenty of land available for extended afforestation. There are altogether some 25 million acres, or 30 per cent., of the land in Great Britain and Ireland which is either lying waste altogether or used for rough grazing, apart from their value as shooting grounds. It is, no doubt, difficult to estimate the actual returns yielded by these lands; but I feel sure that I am within the mark when I say it is less than one shilling an

acre all round. Some of the lands may yield up to half a crown, but enormous areas yield considerably below a shilling, even down to threepence an acre. We may safely say, then, that there is no lack of land obtainable at reasonable and even low rates.

As regards the climate, there is practically nothing better to be desired, as far as the production of timber is concerned, however unpleasant it may be in other respects. We have, generally speaking, mild winters and cool summers. Of rain we have plenty, often too much, while snow and ice are not nearly so frequent as in other northern European countries. Unfortunately, of gales and strong winds we have more than a fair share, but with proper management their injurious effect upon forest growth can be considerably reduced. On the whole our climate, at any rate up to the centre of Scotland, though it may not be equal to that of a great portion of France, compares very favourably with that of Germany, and there is absolutely no reason, in this respect, why we should not grow as good timber here as is done in Germany. At any rate our climate is considerably more favourable than that of Norway, Sweden, and North Russia, whence we import some 6 million tons of timber a year.

If home-grown timber has hitherto been considered inferior to timber imported from those three countries, it is due, not to the climate, but to the manner in which it has been grown. Conifers have been too heavily thinned while young, so that they yielded knotty timber with broad annual rings. Only let us grow our timber in the manner followed by Germany and France, the countries which share the honour of having developed the science and art of forestry, and we shall produce the same quality of Scots Pine (the red deal of the Baltic) and Norway Spruce (the white deal of the Baltic) as that now imported into this country. It is the non-observance in this country of good silviculture which is at fault, and not the climate. As regards hard woods, and especially Oak, it is asserted by leading timber merchants that the quality of British-grown timber is actually superior to that imported from the Continent, but that the latter comes to us in better shaped cleaner pieces, which again indicates faulty silviculture in this country. On the whole there is no doubt in my mind that we can produce just as good timber in this country as that now imported from other European countries, provided we put our shoulders to the wheel, and teach our land agents and foresters correct silvicultural methods.

At the same time we must not expect immediate results in all cases. In only too many instances the land has suffered in yield capacity owing to continued exposure and the subsequent dissipation of all organic matter. In such cases there will be some difficulty in the beginning, but if once more a suitable forest crop has been established on the areas, the producing powers of the land will increase in the same degree as organic matter accumulates in the soil. The loss of increment in the beginning is a penalty which we shall have to pay for neglect in the past.

FINANCIAL ASPECT OF BRITISH FORESTRY.

The next question you are likely to ask me is "Will it pay to put land under forest in this country?" In answering that question we meet great difficulty. Most naturally you would say "Let us inquire what the results of forestry have been so far." That inquiry would lead to disappointing results, because, in the first place, it is almost impossible to obtain, in this country, data which would conclusively prove the case either one way or the other; and, secondly, we can only estimate what the effect would be if rational silvicultural methods were applied to the industry, accompanied by a more systematic management.

As regards the first point, I must point out that those data which are available are almost invariably vitiated by the fact that many items are included under expenses which have little or nothing to do with forestry by itself. For instance, you find heavy payments for fences which ought to be charged against shooting rents or enjoyment of the chase, or even against the cultivation of adjoining land, to keep the cattle out of the woods. In other cases, fancy roads are kept up for the benefit of the proprietor. As regards the second point, I have no hesitation in saying that the returns might in many, if not in most, cases be doubled by following the rules of rational silviculture and

by systematic management. Let me give you an illustration of the latter point.

THE EXPERIENCE OF SAXONY.

There is probably no country in the world which has such complete records about the past management of woods as the Kingdom of Saxony. That State possesses 428,000 acres of Government forests, which occupy good, bad, and indifferent land, less of the first and more of the last. The forests go up to 3,000 feet above the sea. The systematic management of these forests was commenced rather more than a hundred years ago, and we have authentic records since the year 1817 which show that the yield in wood in 1817 was 61 cubic feet per acre, and in 1893 it was 92 cubic feet, an increase of 50 per cent. At the same time, the growing stock in 1844 amounted to 2173 cubic feet per acre, and in 1893 to 2658 cubic feet, or an increase of 22 per cent. The net return, after paying for all items of expenditure, amounts to—In 1817-26, 4s. per acre; 1827-36, 4.2s; 1837-46, 4.7s.; 1847-53, 6.3s.; 1854-63, 10s.; 1864-73, 14.8s.; 1874-83, 17.5s.; 1884-93, 18.4s.; in 1900, 22.5s. It has, of course, to be borne in mind that the average value per cubic foot of wood in 1817 was 2.1 pence, and in 1900 it was 4.5 pence, equal to an increase of 114 per cent. But the increase of net receipts was 463 per cent., or four times greater than the increase in the value per cubic foot of wood, due to improved management. Remember, these figures refer to the whole of the Saxon State forests, and not to any specially picked out case. There are forest districts in Saxony which give double the above-mentioned net revenue.

(To be continued.)

Certificated Plants.

The Genus *Primula*—continued.

PRIMULA SIEBOLDI.—It was in the early sixties that there came to this country, as one of the results of the late Mr. John Gould Veitch's visit to Japan, some fine Primroses representing greatly improved forms of *P. cortusoides*, and originally known as *P. cortusoides amoena*. It being discovered eventually that Siebold was the first to bring the type to notice, it was re-named *P. Sieboldi*: it had large, deep rosy flowers, the segments rounded and of a bright, deep rosy colour. This received a second-class certificate in April, 1864, under the name of *P. cortusoides amoena*, and a year after it obtained a first-class certificate. I may state in passing that the Floral Committee long since gave up the questionable practice of awarding certificates of the second class, whereby many things good in themselves were branded as second-rate. With the type came alba, a white lacinated flower; alba, bluish white; and grandiflora, having a creamy surface and a rosy reverse: these also were awarded first-class certificates in 1865. These all were exhibited by Messrs. Veitch and Sons.

Two later introductions from the same firm were *striata*, in 1868, a pale ground flower with slight rosy violet stripes; and in 1869 *lilacina*, a pretty pale lilac form; both receiving certificates of merit. About 1874, my brother, Mr. A. Dean, was successful in obtaining seed from some of the best varieties by cross-fertilising them at my seed grounds, then at Bedfont, and at the same time Mr. James Allen, of Shepton Mallet, Somerset, was equally fortunate. Such varieties as *cœrulea alba*, *laciniata*, *maxima*, *purpurea*, and others raised at Bedfont received first-class certificates of merit. Mr. Geo. Geggie, a nurseryman in the north of England, also proved successful as a cross-fertiliser, and during the eighties he obtained certificates of merit for *Brilliant*, *crimson*; and *Purity*, white.

At the end of the eighties and in the early nineties, Messrs. Ryder and Son, of Sale, had obtained new varieties, and secured awards of merit for *Alba Magnifica*, white; *Bruce Findlay*, rosy crimson; *Distinction*, rose flaked with white; *General Gordon*, pale pink; *Miss Nellie Barnard*, rosy blush; *Mr. Ryder*, white, with rosy reverse; and *Queen of Whites*. Mr. T. S. Ware obtained a certificate of merit for Ware's White a year or two previously. Since 1890 no new additions have been made, and, indeed, the race appears to have gone much out of cultivation. The type *P. Sieboldi* remains one of the best, and when Mr. Charles Jordan was the superintendent in the Regent's Park he used it largely and with excellent effect during the spring months.

The pretty free flowering *P. floribunda* obtained a certificate of merit in 1886, when shown by Mr. T. S. Ware. Some pale coloured varieties have been produced from seeds, though the range of shades is a very limited one, a variety of a pale lemon colour being the best known, but a decided advance has been

made in *P. Kewensis*, obtained from a cross made at Kew between *P. floribunda* and *P. verticillata*; the result, a large flowered form of great beauty, which obtained a certificate of merit two years ago. *P. japonica*, introduced by the late Mr. W. Bull and certificated in 1871 with its variety, *lilacina*, is a handsome species; its true home is at the base of rockwork where there is some moisture. The dwarf *P. rosea*, certificated in 1879, has produced a large flowered variety, and, like *P. japonica*, it is a moisture loving plant.

P. Sikkimensis, a pleasing subject for pot culture, obtained a certificate in 1879, and in 1884 an American species, *P. Rusbyi*, but it was found difficult to cultivate in this country; of the *P. denticulata* type. *Capitata* in two or three forms obtained certificates, also *purpurea*, and, I think, *Cashmorian*. The pretty white *P. nivalis* has given no progeny that is white flowered; *P. ciliata* has produced five intermediate forms, as also has *P. viscosa*. *P. Trailli*, which obtained an award of merit when shown by Mr. G. F. Wilson in 1897, is a synonym of *P. involucrata*, and the former specific name of *Trailli* should be abandoned.—R. DEAN, V.M.H.

(To be continued.)

Gardeners and the Study of Botany.

We long for the time when all gardeners shall have some knowledge of botany, but how many are there who regard botany for young gardeners as all nonsense? In Boston (Mass.) recently a florist said "that gardeners did not need botany and could not afford to waste time on it, his experience being that a good gardener and a good botanist were rarely found in one individual. The man who ran too much to botany was generally a mighty poor gardener." No sane person, however, desires a working gardener to carry his botanical studies up to Stage II. of Honours unless the many other kindred sciences have been studied at least in their elementary stages; but the man who said that botany was not helpful simply spoke out of ignorance, and we make bold to suggest that he had never seen within the covers of Professor L. H. Bailey's "Elementary Botany," which is a practical guide for the horticulturist from end to end.

The slothful in the ranks of under-gardeners can unfortunately sometimes point to certain so-called scientific gardeners whose efforts, looked at in the proper light, show all too clearly that with them "a little knowledge is a dangerous thing." But the untrained mind is unable to comprehend out of what the failures arose, for one may see the results but miss the cause. The indolent and the pessimistic will always abide, but perhaps their numbers are growing less.

Do the critics ever consider whether botany has not come to their assistance, even though they knew it not? Are the benefits and necessities of the double-graft in certain varieties of Pear trees not explainable from the physiological laws of botany? Would the plant propagator not derive benefit from a study of such a work as Professor Lucien Daniel's newly published book entitled "The Theory of Functional Capacity and its Results in Agriculture"? Have not experimentalists who combine a knowledge of botany with that of horticulture shown that fruit planters have sometimes themselves to blame for partial or total failures of their crops, by their neglect to intermix different varieties, or, say, a line of one variety (noted for its pollen-producing properties) betwixt the lines of others (all of one kind) flanking it on either side, and whose pollen-bearing property is weak? Is it not the case that botany has strengthened the horticulturist in this case?

And nowadays, when the hybridising and crossing of plants are such important national factors (not merely sectional, but *national*), how can any gardener stand up before his fellows and say botany is useless? We could go on choosing instances to show the especial advantages derivable from an understanding of the elementary features of the science of botany, but these few random references may suffice. It is hardly necessary to say that with increasing competition in all ranks the best equipped men are surely the most likely to succeed, and botany is certainly an adjunct to the gardening practitioner, whose aim ought not only to be successful culture, but the advancement of his profession and his country's interests.

TURNING GRAVEL WALKS.—Garden walks or paths previously well made with a good thickness of fine gravel may readily be made fresh and new by the process of turning. Weeds and mossy growths are thus easily disposed of, and an opportunity is afforded of regulating hollows and giving a proper fall to the path. Drains must be examined, clearing away deposits of sand or stones. Pass a heavy roller over the work immediately the gravel is so dry that the surface does not stick to the roller. Should the gravel be scanty, the fine material available not covering the rough, a thin layer of fresh may be introduced.



Cypripedium tessellatum porphyreum.

This hybrid from *C. concolor* and *C. barbatum* is scarce, but it is both an interesting and beautiful flower. The ground colour of the flower is pale yellow suffused with bright rosy-purple, and in shape the flowers are intermediate between the parents, as our illustration shows. Plants are obtainable, we believe, through certain trade sources.

Cultural Notes: *Odontoglossum citrosum*—*Sophranitis grandiflora*.

A little sunshine would be of very great value to our orchids now, for they have had little enough of it during the last twelve months. It would be of immense benefit even to the cool section, such as *Odontoglossums* and similar plants, while all the tropical species are simply pining for it. Still, it is necessary that sunlight after a dull time, like food to a starving man, should only be allowed in small quantities at first; and although at present there is no sign of any too much, it is well to be prepared in the beginning of February with the blinds.

When these have been stored away during winter they must be got out and repaired, if necessary, all requisite cords renewed, and the pulleys and fastenings seen to. When fixed one feels more comfortable, for a sudden bright burst of sun in early spring has before now played havoc with young tender growths of such species as *Dendrobiums*. But they must not, of course, be run down as a safeguard against this and kept down; only for a very few minutes is it necessary in most cases, while on bright days the plants will only need screening for an hour or two in the middle of the day.

The young shoots on *Odontoglossum citrosum* are getting well advanced, but no water must be given as yet. As soon as the tip of the flower spike can be distinctly seen, then let the roots have a thorough soaking, but not before, or the chances are that many of the bulbs will fail to flower. The shrivelling of the bulbs that takes place need not be taken any notice of, for as soon as water is applied they plump up again. The first watering should be a thorough one. Take the plants down one by one and dip them in a pail or tank, keeping them submerged until every particle of the compost is moistened. After this soaking the flower spikes lengthen with great rapidity.

The flowers of *Sophranitis grandiflora* are very large in comparison with the bulbs that produce them, and it is a mistake to keep them on the plants until they fade unless they are in the very best of health. When the blossoms are removed the specimens should be thoroughly cleansed and placed, if possible, in a house slightly warmer than that in which they have been. This will be of benefit to them in regaining their strength. Should there be any looseness about the base of the bulbs a little new compost may be added when required.—H. R. R.

Orchids at Cheltenham.

Mr. James Cypher's orchids are always well worth going a long way to see, so with the time at my disposal the short run from Gloucester to Cheltenham was a mere detail, the Midland Railway landing almost at Mr. Cypher's door. Such a floral feast as awaited me can scarcely be done justice to in a few hurried notes. The first house we came to was occupied chiefly with *Odontoglossums* and *Masdevallias*. Of the former there were some fine examples of *O. crispum*, *O. Andersonianum*, *O. polyanthum*, *O. Pescatorei* (almost a pure white), *O. Madrense*. In contrast to the paler shades of the *Odontoglossums* were the warmer coloured *Masdevallias*, including *M. Veitchiana grandiflora*, scarlet; *Heathi*, crimson; *Hinkseana*, yellow; and *Schröderiana*, purple and yellow. The *Cypripediums* in full flower were a sight to be remembered. Very striking was *C. insigne* Harefield Hall variety, *C. i. Sanderæ*, and *C. i. Sanderianum* (pale green). *C. Leeanaureum*, *C. L. Cypher's* variety, *C. L. Bourtoni*, *C. L. Burfordense*, and *C. L. giganteum* were all in fine form; as were *C. x Mons. le Curlé*, *C. x Pitcherianum*, *C. x T. B. Haywood* (a large, light coloured variety), *C. Roetzli*, *C. Sallieri Hyeanaum*, and *C. Spicerianum*.

Laelia anceps in several varieties looked most promising, but were not yet in full bloom. *Laelio-cattleya x Myra Charlesworthi*, with crimson lip and Indian-red sepals, is rather a striking variety. Of *Oncidium*s, *Krameri* at once caught the eye, while *O. Cavendishianum*, with its large pale yellow blossoms, was also beautiful, and *O. tigrinum* stood out well.

A large house full of *Cattleyas* resting, but looking the very picture of health, gave promise of a grand display in due season. *Vanda cærulea*, with its pale blue flowers, looked very dainty and sweet; and, by way of contrast, there were *Epidendrum x James O'Brien* (dark crimson), *Zygopetalum Mackayi*, and *Z. crinitum*, each in full bloom. Amongst a set of seedlings in

one house *Cypripedium* x *Maudiae* took my fancy immensely, the bloom being clear pale green and white, very chaste indeed. At present the price is *only* fifty guineas, so I had to admire and walk on. I looked enviously at Mr. Cypher's well known specimen and trained plants, snugly ensconced in their winter quarters. A fine batch of *Begonia* Gloire de Lorraine and Turnford Hall variety made a brave display of colour.

I saw, for the first time, *Moschosma riparium*, a new greenhouse plant, which may best be described as a pale lavender (almost white) *Spiraea* as regards its flowers, which last well in a cut state. It is said to be of easy growth, and is sure to become very popular. I came away highly delighted with my visit and the all-round courtesy of Mr. Cypher and his assistants, and would strongly advise the readers of the *Journal* not to miss the chance of a visit to Mr. Cypher's nursery if ever it comes their way.—A. H.

Trees and Plants of Fancy.

Some centuries ago naturalists occasionally exercised the faculty of imagination, inventing strange stories of animal and vegetable life; they depicted curious forms which had no existence. So far they were fortunate; they generally got their narratives credited, even when they were absurd or contradictory. In this age, these naturalists would not have fared as well: people would have applied the "search light," being more investigative for the most part. Certainly we have exceptions. The readiness with which the puffing advertisements of many patent medicines are accepted is a remarkable fact in the midst of prevalent scepticism. But returning to the ancients, if we ask wonderingly, "Why did they produce such extraordinary tales?" we find an answer in the love of what was marvellous, and their ignorance concerning the formation of animals and plants. There is no reason to think they were prompted by a love of hoaxing, but there would have been no advantage in devising marvellous narratives, unless they were told to others.

Occasionally, not satisfied with mere description, the pencil was employed to represent strange figures. Still, after all, the early naturalists were pioneers of truth; if they dealt in chimeras, they also recorded many facts. Perhaps the story of the presumed origin of the barnacle goose is one that can hardly be matched in oddity. The name is spelt "bernacle" in most modern books. According to this description, vouched for seriously, the goose was developed from the buds of a tree. We do not like to feel suspicious of such a worthy naturalist as old Gerarde, and we can only say that, if he was not fibbing, he must have been under some delusion.

He is quite circumstantial, and tells us that he saw upon an island near Lancashire some dry, old, and decayed trees cast up by the waves, covered with spume or froth. From this froth are developed shellfish rather like mussels, but white. These hang for a time; at last they open, and out of them comes what resembles a piece of lace or string. Then this divides, forming the legs; next the body appears: lastly the bird hangs by the bill, and falls into the water! Afterwards it grows feathers, and appears as a waterfowl, black and white, rather less than a goose. He was right enough so far as that shells did occur amongst such débris, but not bred from the wood. This story, however, had been told long before the time of Gerarde. Some said such geese came from a living tree that grew on the sea edge; it was actually figured showing the little geese dropping from the buds; they gave it a Latin name, calling it *Anseres arborei*. The old drawing represents a tree with small pinnated leaves: it looks rather like a *Robinia*. This freak of fancy held its ground after the Royal Society was started, for it published in the "Transactions of 1677" an account of what Sir Robert Murray supposed he saw in the Western Islands of Scotland, but he seems to describe a smaller species as one produced from trees.

Akin to this legend was the story of the oyster tree, which Bishop Fleetwood, in 1707, mentions as occurring at Guada Coupe, from the branches of which each year are produced little oysters about the size of a crown piece. He has an explanation of the supposed development: the branches sometimes dip into the water, since the tree grows close to the sea. Therefore, says he, the spawn of oysters is deposited on the boughs: they hatch and live upon the tree, getting an occasional dip into the briny. Kircher reported a Chili tree, from the leaves of which small worms came, which grew afterwards to serpents; and he also names a plant, *Catopa*, of the Molucca Islands, the leaves of which, when they fell off, developed into butterflies. In our own country an observer declared he had visited some wells near Rugby, about which grew certain trees that from time to time dropped twigs and fragments of branches into the wells. These, when taken out, proved to be stony, and had power to cure diseases.

Then we have Sir John Maundeville's tale concerning a strange plant of Tartary, which, upon cutting open what he calls the fruit, discloses a "little beast," resembling a lamb,

flesh, blood and bone, which people ate. Parkinson stated that there was a plant of the northern regions that originated the fable, a species of *Polypody*, having a decumbent root, clothed with soft yellow hair.

Possibly the legend of the "herb of gold" did refer to some plant which had a spike of golden flowers, but we have no clue to the species. A variety of magical properties were ascribed to it, one of these being that, if rightly gathered, it enabled people to understand the language of beast or bird. To cut it with a steel implement was dangerous; it had to be gathered by a person attired in white and bare-footed. Curious, again, were the stories about what were called bleeding trees. It was believed that trees associated with some murder or suicide would, years after the event, now and then discharge blood from the trunk or roots. Whether the story of the blasting wort or springwort of Germany did belong to some actual plant it is difficult to say, but no species ever had its mysterious powers, believed in as far back as the time of Pliny. Any lock or bolt touched with the plant would at once yield, but it was not easy to obtain, except by the help of the woodpecker. You were told to look out for a nest of this bird and plug it up with wood. At once the woodpecker goes after the springwort, When it holds this before the nest the wood flies out in a moment, and the plant may be picked up—so they said.

As we might expect, amongst the nations of antiquity traditions are frequent about the Tree of Life and the Tree of Knowledge. Both are represented, or at least supposed to be, in early sculptures of Egypt and Assyria. Most import attached to the Tree of Life, symbol of all created things, and one furnishing food to the gods. Its usual figure is thought to resemble a species of *Fig*. Opinions differ about the Tree of Knowledge; some suppose the figure of the fruit represents an Apple, others call it a Citron. The Apple is certainly connected with many more legends than is the Citron. One of the charms of the fabled Islands of the Blest was their groves or orchards



Cypripedium tessellatum porphyreum.

of Apples. Again, there was the story of trees which were said to bear Apples of actual gold, not merely golden hued. Other trees of this kind were fabled to exist, the perfume of the fruit being so reviving that it would restore the sick to new health. Fancy told of Apples, too, which conferred upon their happy discoverer the powers of melody or poetry.

Folks attributed curious influences to the seed or spores of the common Bracken, the possessor of which, if he gathered it at the proper season, could make himself invisible, and find out mysterious secrets. Experiments with this plant, however, ended in disappointment; hence arose a legend that where ferns grew, by research people might get seed from another species, both magical and rare. Puck, it was supposed might give the person a bag of gold who succeeded in his search, though he had to undergo sundry perils from evil spirits, which would be worse than running the gauntlet of the police to get hold of money hidden by some proprietors of periodicals! It was fancied to bear a blue flower at midsummer—some said at Michaelmas—immediately succeeded by seeds of a bright yellow.—J. R. S. C.

The Winter Moth (*Cheimatobia brumata*).

Probably this is the most pertinacious and malignant insect that the British fruit grower has to combat. Timely measures are necessary, and not only that, but persistent effort is essential in order to keep the caterpillars from increasing should eggs have unfortunately been laid in spite of greasy bands attached round the stems of the trees. The wingless females and winged males appear as early as the middle of October, and it is advisable to keep on the "sticky bands" till even April, for about the end of March the spring brood of the Winter Moth appears, and also the wingless females of the March Moth. It is necessary, therefore, to re-grease the bands occasionally during the winter.

The normal period of hatching in the case of eggs of the Winter Moth is about the middle of March (eggs being mostly laid by the end of December), and the young caterpillars (or larvæ) do enormous damage if left unchecked in their depredations upon the growing buds and leaves. In bad infestations



FEMALE (WINGLESS). MALE (WINGED).

The Winter Moth.

they may entirely strip trees of their foliage. To destroy egg colonies and larvæ where only small orchards or fruit gardens require to be treated, a kerosine emulsion is recommended. Where broad-scale treatment has to be resorted to, at a paying rate against the caterpillars, Paris green is found to be best. For liquid application, i.e., to be sprayed as a mist on the trees, the amount recommended is "not more than from 2oz to 4oz in 40gals (forty) of water or ½oz to ¾oz in 4 gals of water, to be applied as a fine spray by means of a force-pump."

Book Notices.

A Glossary of Botanic Terms.

This is the latest book produced by Mr. B. Daydon Jackson, who recently retired from his post in the Kew Herbarium, and the publishers are Messrs. Duckworth and Co., London. Advanced students of botany will have often experienced doubt as to the application of some botanic terms, or may likely enough have had need for a reference to refresh the memory, and it is to help botanists (amateur and professional) in these instances that this book has been furnished. It will be an invaluable auxiliary to students in the science of botany. It is arranged alphabetically, and three instances which we choose will show its significance directly:

Aposp'ory (Greek = seed), suppression of spore-formation, the prothallus developing direct from the sexual generation.

Trabec'ula, pl. *Trabec'ulæ* (Latin = a little beam), a cross-bar; (1) the transverse bars of the teeth of the peristome in mosses; (2) plates of tissue forming partial septa in the micro-sporangium of *Isoëtes*; (3) the lacunar tissue in *Selaginella*, between the cortex and the central bundle.

Chro'mosomes, fibrillar bodies of definite number formed during nuclear division, dividing by fission into new groups, and contributing to form the daughter nuclei.

The price of the book is 6s.

NATURE-STUDY.—Messrs. Duckworth announce that "Eton Nature-Study and Observation Lessons," by M. D. Hill, M.A., F.Z.S., and W. M. Webb, F.L.S. (numerous illustrations from sketches, photographs, &c.) will be issued in two parts, 3s. 6d. net each. Part I. is ready; part II. shortly.

NOTES

NOTICES

Veitch Memorial Fund.

At the annual meeting of the trustees, held on January 26, it was decided to offer the large silver medal for distinguished services to horticulture to Sir Thomas Hanbury, K.C.V.O., in appreciation of his munificent gift of the garden and estate at Wisley to the Royal Horticultural Society; and a similar medal to Professor Daniel, of Rennes, in recognition of the valuable results obtained by his experimental researches on grafting. It was also decided to make a further grant of £25 to the Lindley Library.

Royal Horticultural Society.

The next meeting of the committees will take place on Tuesday, February 9, in the Drill Hall, Buckingham Gate, Westminster. The annual general meeting of the Fellows of the society will also be held in the Drill Hall, at 3 p.m., on the same date. Fellows attending the meeting are invited to inspect the new hall now building in Vincent Square. At a general meeting held on Tuesday, January 26, 119 new Fellows were elected, amongst them being the Lady Hindlip, Lady Wynford, and Sir John Aird, M.P., making a total of 172 elected since the beginning of the present year.

Royal Botanic Society, London: Great Exhibition.

It is proposed that a horticultural exhibition shall take place in the month of June this year, under the auspices of the society, in the new exhibition grounds of the society, situated in the centre of their beautiful gardens in Regent's Park; the exhibition to be open for one week or possibly longer. The proposed scheme embraces horticulture, forestry, botany, educational methods, Nature-study, and a special section for Colonial produce. In addition to the exhibition, lectures, conferences, and conversation are in course of arrangement. The President of the R.B.S. is Major His Serene Highness the Duke of Teck. All communications respecting the gardens and exhibitions, &c., should be made to Mr. J. Bryant Sowerby, the Secretary.

Professor Sargent's Tour.

Professor Charles S. Sargent and his son, A. R. Sargent, the landscape architect, have recently returned from a tour of over six months' duration, chiefly spent in Russia and Siberia. Leaving New York on May 9, the land of the Czar was first entered on August 1, and some weeks were spent in the Crimea. Siberia was entered by the Chita branch of the railway, and twenty-eight days were spent in the train. The vast forests of Siberia, as well as the broad steppes, were most impressive. Farming in Siberia is very primitive, and agricultural implements were most crude. Wooden ploughs are used, drawn by twelve yoke of oxen. American implements were being introduced, however. The soil is wonderfully fertile, and with proper cultivation would easily supply the world with wheat, so vast is its area. Many bulbs, seeds, and dried specimens were secured in Manchuria, as also in Korea. The visit to Korea was of special interest, for it had never been studied by any botanist, and the collection of seeds and plants secured there is expected to produce some marvellous varieties unknown to Western floriculture and arboriculture. Other places visited included Java, Singapore, and a call at several Chinese ports. Java was truly named the garden of the world, the vegetation both there and in Singapore could only be likened to huge hothouses, or conservatories of Nature, both the foliage and flowering plants being magnificent. What impelled Professor Sargent to undertake this trip (says a writer in "American Gardening") at his somewhat advanced age was the phenomenal success attending the trip of Messrs. James Veitch and Sons' (London) traveller to Central China, extending to the Chinese-Thibetan frontier, and the desire that America, and more especially the renowned Arnold Arboretum, should not be backward in attempting to secure some of the many treasures still awaiting discovery. As a result of the trip, Mr. Sargent sent home some 8,000 specimens of bulbs, seeds, or plants, which should yield many striking novelties for the adornment of American gardens.

The Proposed Gardeners' Association.

Discussion has lagged in nearly all the gardening papers on this subject. Criticisms alone seemed to be thought of, and we observe that the honorary secretary, as well as the committee appointed pro tem., has come to the conclusion that "the proposal is materially ahead of the times." While most of us must have arrived at the same conclusion, we yet deplore the fact that no tangible organisation exists amongst gardeners to work for their material interests.

British Horticultural Exhibits at St. Louis.

We learn that Messrs. Sutton and Sons and James Carter and Co. have bulb collections at the International Exhibition, St. Louis. Mr. John Forbes has Phloxes, Messrs. Cheal will have Dahlias, while Cannell and Sons and Kelway, of Langport, have already prepared their exhibits. Mr. W. Goldring is in charge of the English section of horticulture.

Board of Agriculture and Forestry.

In the Forest of Dean, at the instigation of a Departmental Committee, "the Board" is commencing a School of Forestry, and although there will only be twelve students at the commencement, Lord Onslow thinks it would be found that the principle of training young men to the craft of forestry would be appreciated, and that these foresters, like Kew gardeners, would find a place anywhere.

Feltham, Bedfont, and Hanworth Horticultural Society.

We have received the rules and syllabus of meetings for the first quarter of the present year from a member of this newly-formed mutual improvement society. The programme is a bright and useful one, and we are pleased to note that two nights are given over to discussions, without the reading of a paper. It lies with the members to make the society and its meetings successful. * * Some of your readers may be interested to know that as a result of a course of six lectures given by the Middlesex County Council lecturer, Mr. Weathers, which ended on January 3 last, we have formed a Horticultural Mutual Improvement Society with the object of carrying on the work. Our efforts so far have been very successful for a country village, as we already number about fifty members. At the lecture given by Mr. Whittaker on Wednesday last, there were twenty-one members present. The subject was "Onions for Home Use and Exhibition," and was well received, and also discussed.

The Weather at Hamilton.

More sunshine than we have of late been accustomed to has favoured us throughout the last week. The temperature mostly remained high for the season, though not so mild as the week preceding. The latter half of the week was characterised with high winds, tempered with passing showers. On Friday night it culminated into a gale of some severity. However, there is no account of any serious damage being done in the district to trees or property in general. On Sunday morning the temperature was found to have fallen during the night to 28deg Fahr., and during the whole day the frost kept its hold in the shade, and at night set for frost again.—D. C.

Scottish Horticultural Association.

The monthly meeting of this association was held in Dowell's Rooms on Tuesday evening, the 2nd inst., Mr. McHattie, president, in the chair. There were nearly 100 members present. A number of new members were proposed. Mr. Whytock, of Dalkeith Palace Gardens, read a very excellent and instructive paper on ornamental trees and shrubs, and his experience in planting and growing them. Mr. Whytock emphasised the importance of planting storm shelter plants amongst the finer exotic specimens, and recommended for this purpose Austrian and Corsican Pines, where sites were not much exposed to winds, but in stormy sites recommended Scots Pine and Larch. Mr. Whytock also advised the liberal use of half-rotted manure and leaves round the roots, and in the younger stages of growth the frequent mulching of the surface of the roots with rotted cowdung and leaf soil. The paper was listened to with rapt attention, and a vigorous and interesting discussion followed, taken part in by Mr. D. P. Laird, Mr. D. W. Thomson, Mr. Gunnison, Mr. Comfort, Mr. A. Mackenzie, and others.

Recent Research in Agriculture.

At the Royal Institution, Albemarle Street, Piccadilly, London, W., Mr. A. D. Hall, M.A., of Rothamsted, to-day (Thursday), at five o'clock, delivers the first of three lectures on "Recent Research in Agriculture." The fee for the course is half a guinea.

The "Geological Magazine."

Dr. Henry Woodward, LL.D., F.R.S., whose retirement from the post he long held as keeper of the geological department of the British Museum took place a year or two ago, has just completed the fortieth annual volume of the "Geological Magazine," which he founded and has edited since its start.

Women Gardeners in South Africa.

We learn through a French contemporary that one of the latest project for the development of South Africa is the creation, at Pretoria, of a school of horticulture for women. The plan proposed has been adopted by the Society of South African Colonisation.

Trees in George Street, Edinburgh.

Some time ago it was agreed to plant, as a trial, a number of trees at the east end of George Street, Edinburgh, and if these are found to thrive (though the part is very wind-swept), and to cause no inconvenience to tenants of shops and offices, the planting will be carried further.

The Proposed Agricultural College in the North.

The scheme for establishing in Aberdeen an Agricultural College for the north of Scotland came before the Finance Committee of the County Council of Aberdeen on Friday, January 19, Mr. Bothwell presiding. It was remitted to a joint committee of the Finance Committee and the Secondary Education Committee to report as to what proportion of the residue grant should be given for the support of the proposed college. It was pointed out that if the scheme was to be a success, Aberdeenshire must contribute more than any neighbouring county from which aid is expected.

"The Trade" and the Horticultural Hall.

We understand that since the issue of the Royal Horticultural Society's report and the issue of an appeal for funds for the Horticultural Hall by Baron Schröder, the society's offices have been bombarded with letters to the following effect:—"May I express a hope that those members of the trade who make such liberal use of the society, either at the hall, or at the Temple, or Holland House, for their exhibits, should be called upon either to support the funds in a handsome manner directly, or be made to do so indirectly by having in future to pay for all space allotted to them at shows. For I have noticed, in looking over the subscription list for the new hall, that several who are most constant and liberal in their application for space for their exhibits are equally conspicuous by the absence of their names from the list of subscribers."

The St. Louis Exhibition—Joseph H. Hadkinson.

In appointing Joseph H. Hadkinson superintendent of floriculture at the World's Fair, the management showed its appreciation of the work accomplished by Mr. Hadkinson on the seventy acres of land surrounding the palaces of agriculture and horticulture. When Mr. Hadkinson joined the World's Fair force of workers he was made the head gardener, on the recommendation of Frederic W. Taylor, chief of the departments of agriculture and horticulture. Most of his domain was a field of barren yellow clay. In less than a year he has converted this into immense gardens. There are great lawns and a six-acre Rose garden. As superintendent of floriculture Mr. Hadkinson will be in charge of all the gardens and also the flowers displayed in the conservatories, which form a part of the palace of horticulture. Mr. Hadkinson was born in Manchester, England. When a youth his parents emigrated to America and settled in Nebraska. He had studied in London, and in his new home he embarked in the nursery business. He gave that up to accept a position as instructor in horticulture in the University of Nebraska, under Chief Taylor, who was then professor of agriculture at that institution. Mr. Hadkinson did the gardening at the Omaha exposition, and had charge of Nebraska's horticulture exhibit at the Pan-American exposition at Buffalo.

R.H.S. Committees, 1904.

The lists hereunder furnish the names of the gentlemen composing the various committees of the Royal Horticultural Society, London.

Scientific Committee (Established May 5th, 1868).

CHAIRMAN.

Sir J. D. Hooker, K.C.S.I., C.B., F.R.S., V.M.H., Sunningdale.

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Balfour, Prof. I. B., F.R.S., V.M.H., Botanic Gardens, Edinburgh.

Bateson, W., M.A., F.R.S., V.M.H., Merton House, Grantchester, Cambs.

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Bonavia, Dr. E., Westwood, Richmond Road, Worthing.

Boulger, Prof. G. S., F.L.S., F.G.S., 11, Onslow Road, Richmond, Surrey.

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Burbidge, F. W., M.A., V.M.H., Trinity College Gardens, Dublin.

Champion, G. C., Horsell, Worthing.

Chapman, H. J., The Gardens, Oakwood, Wylam-on-Tyne.

Chittenden, F. J., Biological Laboratory, Chelmsford.

Church, Prof. A. H., M.A., D.Sc., F.R.S., Shelsley, Kew Gardens.

Cooke, M. C., V.M.H., M.A., LL.D., 53, Castle Road, Kentish Town, N.W.

Darwin, Francis, M.B., F.R.S., Wychfield, Huntingdon Road, Cambridge.

Davidson, H. C., Fanners, Wickham Bishops, Witham, Essex.

Dod, Rev. C. Wolley, M.A., V.M.H., Edge Hall, Malpas, Cheshire.

Douglas, James, V.M.H., Great Bookham, Surrey.

Drury, C. T., F.L.S., V.M.H., 11, Shaa Road, Acton, W.

Duncan, F. Martin, 1, Crescent Road, South Park, Reigate.

Ellacombe, Rev. Canon, V.M.H., Bitton, Bristol.

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Farmer, Prof. J. B., M.A., Royal College of Science, S. Kensington.

Fraser, John, 4, Willow Cottages, Kew.

Godman, F. DuCane, F.R.S., 10, Chandos Street, Cavendish Square.

Gordon, George, V.M.H., Endsleigh, Priory Park, Kew.

Groom, Prof. Percy, F.L.S., Hollywood, Egham.

Hartog, Prof., D.Sc., M.A., Queen's College, Cork.

Henry, Dr., Royal Gardens, Kew.

Holmes, E. Morell, F.L.S., Ruthven, Sevenoaks.

Hooper, Cecil H., Church House, Shoreham, near Sevenoaks.

Houston, D., F.L.S., Royal College of Science, Stephen's Green, Dublin.

Hurst, C. C., Burbage Grove, Hinckley.

Im Thurn, E. F., C.B., The Queen's House, Colombo, Ceylon.

Lindsay, R., Kaines Lodge, Murrayfield, N.B.

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Lynch, R. Irwin, A.L.S., Botanic Gardens, Cambridge.

Massee, George, F.L.S., V.M.H., Gateacre, Sandycombe Road, Kew.

Mawley, Ed., Rosebank, Berkhamsted.

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Morris, Sir Daniel, K.C.M.G., M.A., F.L.S., D.Sc., Imperial Agricultural Department for the West Indies, Barbados.

Müller, Hugo, Ph.D., F.R.S., 13, Park Square East, Regent's Park.

Murray, George, F.R.S., Natural History Museum, S.W.

Newstead, Robert, F.E.S., Grosvenor Museum, Chester.

Nicholson, George, A.L.S., V.M.H., 37, Larkfield Road, Richmond.

O'Brien, James, V.M.H., Marian, Harrow-on-the-Hill.

Odell, J. W., The Grove, Stanmore, Middlesex.

Oliver, F. W., D.Sc., F.L.S., 2, The Vale, Chelsea, S.W.

Plowright, C. B., F.L.S., 7, King Street, King's Lynn.

Rendle, Dr. A. B., Natural History Museum, S.W.

Russell, W. J., F.R.S., Ph.D., 34, Upper Hamilton Terrace, N.W.

Salmon, Ernest S., Charlton House, Kew.

Saunders, George S., F.L.S., F.E.S., 20, Dents Road, Wandsworth, S.W.

Scott, D. H., M.A., Ph.D., F.R.S., F.L.S., The Old Palace, Richmond, S.W.

Scott-Elliott, Prof. G. F., M.A., B.Sc., F.L.S., Fore House, Kilbarchan, Renfrewshire.

Shea, Charles E., The Elms, Foots Cray, Kent.

Smith, William G., Ph.D., Yorkshire College, Leeds.

Smith, Worthington G., F.L.S., 121, High Street Dunstable.

Sutton, Arthur W., F.L.S., V.M.H., Reading.

Veitch, H. J., F.L.S., 34, Redcliffe Gardens, South Kensington.

Walker, A. O., Uicombe Place, near Maidstone.

Ward, Prof. Marshall, F.R.S., Botanical Laboratory, Cambridge.

Worsdell, W. C., Jodrell Laboratory, Royal Gardens, Kew.

Worsley, A., Mandeville House, Isleworth.

NOTE.—Members of the Council are Members of all the Committees.

Fruit and Vegetable Committee (Established May 7th, 1854).

CHAIRMAN.

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Pearson, A. H., Hucknall Road, Nottingham.

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Divers, W. H., Belvoir Castle Gardens, Grantham.

Fyfe, W., Lockinge Park Gardens, Wantage.

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Reynolds, G., The Gardens, Gunnersbury Park, Acton, W.

Rivers, H. Somers, Sawbridgeworth.

Thomas, Owen, V.M.H., 25, Waldeck Road, Ealing.

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Veitch, P. C. M., J.P., New North Road, Exeter.

Willard, Jesse, Holly Lodge Gardens, Highgate, N.

Woodward, G., Barham Court Gardens, Teston, Maidstone.

Wright, H. J., 32, Dault Road, Wandsworth, S.W.

Wythes, G., V.M.H., Syon House Gardens, Brentford.

Floral Committee (Established June 24th, 1859).

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Cutbush, H. J., Highgate, N.

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Fielder, C. R., The Gardens, North Mymms Park, Hatfield.

Gordon, G., V.M.H., Endsleigh, Priory Park, Kew.

Green, John, Norfolk House, Dereham.

Howe, W., Park Hill Gardens, Streatham Common.

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Jennings, J., Ascott Gardens, Leighton Buzzard.

Jones, H. J., Ryecroft Nursery, Hither Green, Lewisham.

Ker, R. Wilson, Basnett Street, Liverpool.

McLeod, J., Dover House Gardens, Roehampton.

Mawley, E., Rosebank, Berkhamsted.

Molyneux, E., V.M.H., Swanmore Park Gardens, Bishops Waltham.

Nicholson, G., V.M.H., 37, Larkfield Road, Richmond.

Nix, John Ashburner, Tilgate, Crawley.

Notcutt, R. C., Woodbridge, Suffolk.

Page-Roberts, Rev. F., Strathfieldsaye Rectory, Mortimer, Berks.

Pearson, C. E., Chilwell Nurseries, Lowdham, Nottingham.

Pearson, R. Hooper, 40, Brocklebank Road, Earlsfield, S.W.

Perry, Amos, Hardy Plant Farm, Winchmore Hill, N.

Reuthe, G., Foxhill Nursery, Keston, Kent.

Salter, C. J., Woodhatch Gardens, Reigate.

Thomson, W. P., 25, Bollo Lane, Chiswick, W.

Turner, H., V.M.H., Royal Nurseries, Slough.

Walker, J., Ham Common, Surrey.

Wallace, R. W., Kilnfield Gardens, Colchester.

Orchid Committee (Established March 26th, 1889).

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Ballantine, H., The Dell Gardens, Staines.

Bilney, W. A., Fir Grange, Weybridge.

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Bond, T. W., Elstead House Gardens, Godalming.

Boxall, W., V.M.H., 186, Brook Road, Upper Clapton.

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Crawshay, de Barri, Rosefield, Sevenoaks.

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Hislop, A., Bletchley Park Gardens, Bletchley.

Little, H., Baronshalt, The Barons, E. Twickenham.

MacBean, A. A., Cooksbridge, Sussex.

Moore, F. W., V.M.H., Botanic Gardens, Glasnevin, Dublin.

Moore, G. F., Chardwar, Bourton-on-the-Water, Glos.

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Pitt, H. T., Rosslyn, 57, Stamford Hill, N.

Pollett, H. M., Fernside, Bickley, Kent.

Potter, J. Wilson, Elmwood, Park Hill Road, Croydon.

Rehder, Frank, 29, Mincing Lane, E.C.

Sander, F., V.M.H., St. Albans.

Thompson, W., Walton Grange Gardens, Stone, Staffs.

Thorne, F. J., The Gardens, Sunningdale Park, Berks.

Thwaites, R. G., 23, Christchurch Road, Streatham Hill.

Tracy, H. A., Amyand Park Road, Twickenham.

Wellesley, Francis, Westfield, Woking.

White, W. H., Burford Lodge Gardens, Dorking.

Young, W. H., Clare Lawn Gardens, East Sheen, S.W.

NOTE.—Nine Members form a quorum. Members of Council are Members of all the Committees.

Narcissus and Tulip Committee (Established 1885).

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Baker, J. G., F.R.S., V.M.H., 3, Cumberland Road, Kew.

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Dod, Rev. C. Wolley, M.A., V.M.H., Edge Hall, Malpas, Cheshire.

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Curtis, C. H., 68, Whitestile Road, Brentford.

Barr, R., 12, King Street, Covent Garden, W.C.

Boscawen, Hon. J., Tregye, Perranwell, Cornwall.

Bourne, Rev. S. E., Dunston Vicarage, Lincoln.

Bowles, E. A., M.A., F.L.S., Myddelton House, Waltham Cross.

Burbidge, F. W., M.A., V.M.H., Trinity College Gardens, Dublin.

Cammell, G. H., Brookfield Manor, Hethersage, Sheffield.

Copeland, W. F. M., Kibblestone Hall, Stone, Staffs.

Cowan, C. W., Dalhousie Castle, Bonnyrigg, Midlothian.

Crosfield, E. M., Little Acton, Wrexham.

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Digby, Rev. C., Warham Rectory, Wells, Norfolk.

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De Graaff, Jan, Leyden, Holland.

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Goodwin, A. R., The Elms, Kidderminster.

Hall, A. D., The Oast House, Harpenden.

Hartland, W. B., 24, Patrick Street, Cork.

Kingsmill, A., The Holt, Harrow Weald, Stanmore.

MacMichael, Rev. C., Walpole Rectory, Wisbech.

Marsh, Rev. T. H., Cawston Rectory, Norfolk.

Milner, W. A., Totley Hall, Sheffield.

Moore, F. W., V.M.H., Royal Botanic Gardens, Glasnevin, Dublin.

Pearson, J. Duncan, Chilwell Nurseries, Lowdham, Notts.

Pope, J., The Ericas, King's Norton.

Poupert, W., Marsh Farm, Twickenham.

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Scrash-Dickins, C. R., Coolhurst Park, Horsham.

Smith, J. A. Dorian, Tresco Abbey, Scilly.

Sydenham, R., 190, Bristol Road, Birmingham.

Titheradge, G. T., 3, Birch Grove, Acton, W.

Walker, James, Ham Common, Surrey.

Wallace, R., Kilnfield Gardens, Colchester.

Ware, Walter T., Inglescombe, near Bath.

Willmott, Miss, V.M.H., Warley Place, Great Warley, Essex.

Young, H. B., Metheringham Manor, near Lincoln.

NOTE.—Members of the Council are Members of all the Committees. The Committee will meet at the Drill Hall on the following dates, at 12 o'clock, noon, viz., March 8th, 22nd, May 3rd and 17th; and at 11.30 on April 5th and 19th, 1904.

Notes on Hardy Plants.**Iris sindjarensis.**

It is about fourteen years since this pretty little bulbous Iris was awarded a certificate in London. At that time it was a new comer, but being fairly vigorous and increasing well, it has reached a good many gardens and nurseries, so that at the Drill Hall meetings of the R.H.S. at the present time (from mid-January) it is exhibited and admired. Our figure represents a plant very nearly, if not exactly, life-size, and the flowers are mainly of a delicate lavender shade of colour. It was the fore-

**Iris sindjarensis.**

runner of other beautiful species from between the Caucasus and Mesopotamia, having the same general character. As a pot subject for the greenhouse or alpine house, or for warmish, sheltered, open-air borders, it is a plant one likes to recommend.

Various Beautiful Irises.

These Iris species (observe Messrs. Barr) are all hardy and beautiful, flowering one after the other from November to June. The dwarf early species will be more enjoyed if planted on rock-work, where the flowers have a little protection from heavy rains. *Alata*, *reticulata* var. *Histrio* and *Histriodes*, *Vartani*, and *ungicularis* (*stylosa*) vars., are charming winter-flowering species, followed in February by *I. reticulata*, with its lovely violet-scented blossoms, the sweet-scented *I. persica*, and the beautiful species *I. Roscnbachiana*. Next in succession come the interesting *caucasica*, *Orchioides*, the curious Snakeshead *Iris tuberosa*, and the new species *I. sindjarensis* and *assyriaca*. These are followed closely by the Cushion Irises. The pretty Peacock Iris (*I. pavonia*) and the beautiful *Iris cristata* flower in May, and are followed in June by *juncea*, *Boissieri*, *lusitanica*, and *tingitana*.



The Chrysanthemum Analysis.

All lovers of the Autumn Queen are indebted to Mr. Molyneux for his labours in giving us this analysis. It may have faults, but is there any work free from faults? And these are probably not his, but those of the electors. Like a political election, there are plenty of spoiled returns. I can write from many years' experience, as for many years I conducted the Rose election on very much the same lines, and have often had to return voting papers for the careless way in which they have been filled up. Still, it has always seemed to me by far the most useful form of analysis, and far more valuable to the beginner than the plan adopted by my friend, Mr. E. Mawley, for the Rose analysis, interesting as that is. I think, if our friend Mr. Molyneux would ask for the best twelve, the next best twenty-four, and the next best twenty-four kinds, the proportion of first, second, and third votes would alter the position of some of the varieties. In one respect it gives more trouble to the electors, and this care eliminates some of the errors that creep into the returns.

In a private letter to Mr. Molyneux a year or two back I suggested this to him. I know full well that this considerably increases the labours of the returning officer, if he be, as Mr. Molyneux is, a busy man; but it greatly adds to the value of the analysis. In my former summaries of the Rose elections I sometimes gave what Mr. Jefferies suggests in a different way. He asks for a list of each voter's miscalculation, if I may call it so, of the value of each. I used to give a list somewhat in this form: that of the sixty varieties named, Mr. A. had fifty-five, B. fifty-three, and so on. This showed who had most nearly hit the popular fancy, collected from all parts of the country. Of Chrysanthemums it may be truly said that the names are legion. Yet still they come, and to me, an ignoramus, and in my own small way, I cannot help thinking there is a large amount of "too much alike" in the varieties.

Then, of the new varieties, is it certain that every elector has grown all? Would it be possible to restrict the general analysis to those brought out before 1902, for instance, leaving the newer varieties to be dealt with separately? This would obviate some of the eccentricities, as, for instance, in the case of Miss M. Ware, Mrs. F. W. Vallis, and others. An analysis of newer varieties might be dealt with separately. [And they were.—Ed.]

Again, the separate lists of the trade and private growers was another point that I found forced upon me by the Rose election, and suggested by an "Interested Onlooker" in last week's issue. This division brings out the difference in opinion between the trade and smaller growers as to the value of certain varieties; but, again, this means a very considerable increase of labour.

Then there are, besides the eccentricities of the electors: what shall we say of those belonging to the plants themselves? Some will succeed in one situation, but absolutely refuse to unfold their charms properly in another. The treatment has to be modified, and to the small grower the modification often means dispensing with the variety.—Y. B. A. Z.

Varieties from October to January.

Trials of new varieties are expensive, but they pay. For instance, a friend of mine concluded a few years ago that Madame Ed. Roger would sell in Covent Garden Market. He tried about a hundred plants of it the first season, and it did "go," too, paying him more than 200 per cent. over any other variety. The same grower also scored heavily with Mrs. Barkley in the same way; or, to put it tersely, it is a case of the early bird catching the worm. For market purposes your recent correspondent will find the higher class blooms pay best—not that they returned much this season until the present month; but it undoubtedly pays to grow the best varieties and those in the most up-to-date fashion. I do not pretend to give all the best varieties, for they are now so numerous, but those I recommend will be found as good as any in our markets. For October flowering Soleil d'Octobre is the best yellow, either disbudded or in sprays. The same may be said with respect to Bronze Soleil d'Octobre. Market Red is a capital variety for this month, and will be largely grown in the future; it is good either in sprays or disbudded. The best crimson is undoubtedly the old variety Mons. Wm. Holmes. This, when disbudded and opened slowly, is still unsurpassed. Market

White is large and pure in colour; it lifts well from the open ground. La Triomphante is still the best pink for this month, although lacking in colour during the past season. Coming to November or midseason varieties, the number grown is now almost bewildering, but I will make the list as brief as possible, though it is not wise to cut it down too low, for all sorts are not equally satisfactory every season. Ernest Fierens, white, best disbudded; Souvenir d'une Petite Amie, white, an old variety but still one of the best, good either in sprays or single blooms; Phœbus, the well-known yellow, best grown for single flowers; Madame E. Roger, sea green, best disbudded and opened in a cold house, one, of course, from which the frost is excluded, it then comes quite green; Miss Nellie Pockett, white, best disbudded; John Shrimpton, a good crimson that requires good culture.

December varieties that are worth growing are Western King, a fine white, best disbudded; Mrs. J. Thompson, white, rather tall. I see this variety has recently been described in the *Journal* as bronze, but this is a mistake, unless there are two varieties under the same name—the old sort is certainly white. Mabel Morgan, yellow, best disbudded and grown throughout in pots; Miss Alice Byron, white, fine for mid-December; Mrs. Barkley, pink, must be disbudded; Niveus, a well-known white, rather soft, but still largely grown; Putney George, crimson, a good dwarf grower; W. H. Lincoln, yellow, a good variety, but will not stand rough treatment; N.C.S. Jubilee, pink, best as single flowers; Princess Victoria, creamy white, gets more pure when fully open; Golden Victoria, the best of the yellow forms; Letrier, white, a fine flower, but a difficult variety to obtain stock from; Lord Brook, bronze, best disbudded; Madame A. Rousseau, pink, requires a warm summer to produce its proper colour.

Good varieties for January are not so numerous: Winter Queen, a variety that must be thinned severely, then it is a good white; Mrs. J. C. Neville makes a good January variety if left to produce natural sprays, if disbudded it flowers at Christmas; Mdlle. Thérèse Panckoucke, another good white, rather thin, but of good substance; Matthew Hodgson, crimson scarlet; Framfield Pink, a good late form, not a good colour during the past year; King of Plumes, yellow, good in sprays.

Some of the newer varieties worth following are Prince of Pinks, a deeper colour than Framfield Pink; Nellie Bean, a pink that will be useful in December; Violet Lady Beaumont, a grand crimson, will be largely grown next season by the market men, who have no doubt tested it last year. Godfrey's Masterpiece will also make a good market kind, and I am going to grow a large batch of King Edward VII., for December work or early January it is a taking colour, best disbudded. In conclusion I may mention that the old pink variety A. J. Balfour is now largely grown for Christmas by the market growers.—MARKET GROWER.

Primulas at Warfield Hall.

The photograph shows a group of Primulas at Warfield Hall, Bracknell, Berkshire, and they are excellent specimens. Mr. H. Swansborough, the able gardener, is a well-known Primula grower, thoroughly understanding their requirements. I may mention that most of the plants in the photograph measured 19in from tip to tip across, each with three spikes of blooms, the centre ones being well above the fine bold foliage, thus rendering the plants more graceful than those one mostly sees. To get the first spike of flower well above the foliage is Mr. Swansborough's chief aim. There are two varieties in the group, the front two rows being Veitch's Superb White, and the back ones are Veitch's Superb Red.

The seed is sown at the end of April or the beginning of May, in pans or pots, using a compost of loam, leaf mould, and sand. When the seedlings are large enough to handle they are potted into small pots and placed in a pit, as near the glass as possible, and only shaded during the hottest parts of the day, admitting plenty of air in favourable weather. Then, when the plants are well rooted, they are shifted into 32's and grown in cold frames during the summer months, close to the glass.

The compost for this potting consists of two parts fibrous loam with the fine soil shaken out, one part old mushroom dung with sufficient sand to keep it porous, these being well mixed together, using the fingers instead of a stick in potting and making firm. Good drainage is placed in the pots.

Farmyard liquid manure and soot water are used twice a week when the plants are well rooted, with a sprinkling of "Clay's" worked into the surface soil with a pointed stick. This is given so soon as the first flower spike appears. When these show they are removed from the frames and placed on shelves in a greenhouse till they come to perfection, after which they are used as front row plants for conservatory, and for placing in silver bowls on the table.—J. BOTLEY.

Sweet Peas.

The Snowdrops are pushing their leaves through the soil, the buds of many trees are already swelling, the days are perceptibly lengthening, the land which was thrown up roughly in the autumn shows a crumbling surface, and hosts of other little matters which the observer may read from "Nature's open book," proclaim the fact that vegetation in the open air is beginning the work of another year. All garden lovers will be looking forward with eager anticipation to the succession of good things a garden should supply throughout the year, and no garden can be considered complete without Sweet Peas in abundance. From June till November abundance of their flowers may be obtained from the open air where there is sufficient space to make several sowings.

Their popularity for growing in pots to provide flowers during

dissolved bone powder with the soil as it is returned to the trench.

If the soil is light, tread firmly; if heavy, it will usually get close enough in texture without treading. Two inches is quite deep enough to sow the seeds in spring. I should prefer still more shallow sowing were it not for the birds, which do less damage in pulling up the seedlings when they are buried at a moderate depth.

Early in February is an excellent time to make the first sowing, and as soon as the plants come through the soil, much can be done to hasten them by frequent loosening of the surface with a hoe. Pinching out the tops of the plants when they reach a height of 3ft or 4ft will also help to forward the flowers, as well as to give them greater substance. The middle of March is a suitable time to make the main sowing, and a month later for the production of flowers till the end of the season. In hot seasons seed sown as late as the end of May will produce plants which flower well from mid-September till the end of October;



Primulas at Warfield Hall, Bracknell.

April and May, is increasing rapidly, and when well grown they certainly do not suffer by comparison with any of the floral inmates of glass structures at that season. Autumn or early January sowing is, of course, necessary to produce early flowers under glass. My cultural remarks must be confined to the production of flowers in the open air.

Early flowers are worth taking a little extra trouble to secure, and if possible a somewhat sheltered position should be selected for them. Warm south borders are often so much needed for early vegetables that the Sweet Peas are crowded out into more open quarters, but a little shelter from the north and east is so great an advantage that an effort should be made to secure it. Sometimes a position may be found against a fence, rough wall, or building, and I have seen excellent results obtained by thatching a few hurdles with straw, arranging them in the form of a fence, and sowing the Peas on the sunny side. No matter where the position is, the soil before sowing should be deeply worked. I favour the plan of taking out trenches 18in in depth, breaking up the subsoil, putting a good layer of well decayed manure in the bottom of the trench, and mixing

but in wet seasons late sowing often proves a failure. I have also generally found that with good culture the April sown plants will, even in dry seasons, flower right on to October.

Deep culture, that is the point, and that is why I advocate trenching the land or taking out deep trenches just before sowing. When hot weather sets in, giving a heavy mulching of manure is a splendid method of conserving moisture, as well as of feeding the plants, especially when liquid manure cannot be applied. Sulphate of ammonia or soot are excellent manures to apply in a liquid state to heighten the colour of the flowers.

Sweet Pea enthusiasts will doubtless be constantly scanning the catalogues on the look-out for this season's novelties, and I think they will find some surprises in the new American varieties. The following are well-tried varieties which will, I am sure, give general satisfaction:—Early: Early Blanche Ferry, Mont Blanc, Emily Henderson; for general purposes, Countess of Cadogan, Countess of Shrewsbury, Dorothy Tennant, Duchess of Sutherland, Gorgeous, Imperial Blue, Mrs. J. Chamberlain, Primrose, Sadie Burpee, Salopian, Triumph, Prince of Wales, Orange Prince, Lady G. Hamilton.—H. D.



The Perils of Primulas.

We are now in the season of these flowers, and one feels desirous of knowing whether there is any reason to regard them with suspicion. So far I have not suffered anything, nor have my friends. But it has been stated that some varieties have hairs which irritate the skin; still, I presume the plants do not throw off these, as is the habit of certain urticating caterpillars. Again, it has been said that the juice of Primulas is acrid and hurtful if it should happen to enter a cut or any sore place on the skin. Probably this might be said of a large number of plants of various Orders, because they contain saline particles, and gardeners may be in no special peril from Primulas.—C.

Chinese Primroses at Chrysanthemum Shows.

How rarely these are shown in their best character at Chrysanthemum exhibitions; and yet when well "done" they are a bright and effective feature. There are some autumn exhibitions in which the Chinese Primroses deserve a place on the exhibition; I have rarely seen finer specimens than those it was the custom to show at Birmingham. Gardeners appear to trust too much to old plants instead of young ones; some of the best I ever saw were at Devizes, and very fine they were. The method adopted was to sow the seeds in the first week in December in a temperature of 65deg day heat; as soon as the plants are large enough to handle they are potted singly into small pots, using a compost of two-thirds of loam and one-third of leaf mould, to which is added enough sand to keep it open, and a little charcoal in the interest of sweetness. The young plants are kept growing on in the same temperature, shifting them into larger pots as necessary till they are in their blooming pots, chosen according to the size of the plants—overpotting being avoided—and in these pots they should be well established by the end of May. Then they go into a cold frame until the end of July for a kind of rest; then they are excited into growth, and bloom by being placed in a gentle warmth and assisted with a little weak manure water twice a week. If this method of culture were adopted better results would be seen at our Chrysanthemum shows.—R. DEAN.

Potato, White Beauty.

I shake hands with E. Molyneux respecting White Beauty, as to quality. Nevertheless, the fact of its falling off plainly indicates that its days as a paying Potato are over, and for market work the crop must be good, even if the quality is only fair. Respecting Up-to-Date, that variety, although holding the markets, as it has done, has never been an ideal flavoured Potato, and the same must be said of many Scots varieties. The Bruce, British Queen, Royal Kidney, Evergood, Goodfellow, and Northern Star all have something lacking in flavour, although Up-to-Date is better than Northern Star. It is a curious fact that the old Beauty, like other American varieties raised by that great veteran, E. L. Cory, are all of high-class quality, and the Vermont Gold Coin is, I think, the very finest of all, and absolutely second to none ever raised on this side of the water. We still can think of these American varieties as good eaters, although in most instances the eyes are too profuse and prominent to make what is erroneously termed a good Potato, and they are also affected by disease. It would, indeed, be very interesting to know how many varieties there are in our markets that have American in them. Certain it is that the Scots varieties above quoted know it not, for, in breeding up from the old Don and Victoria, the raiser's aim has been chiefly great crops and disease resistance.

As to other good keeping and eating varieties, I fear the list is small. The Crofter is very fine, but how long it will keep I cannot say. A variety that gives promise is the Snowflower, now being sent out at a respectable price: 2s. 6d. a stone. I have recently cooked a sample (I, by the way, cook all my samples in order to know the true facts, for some cooks are deplorable), and I found Snowflower a remarkably white-fleshed and mealy variety. The starch grains appeared to stand out separately, like numerous grains of sparkling sugar. The sample tried was grown in Lincolnshire, and naturally softer in texture to our southern-grown stuff; therefore, if it does well on my heavy Kent soil. I am quite prepared to find it even more mealy. I may add that I am this

season testing nearly 100 varieties, including nearly every new 1904 variety, and the thirty odd grown this past season (Eldorado and Sim Gray barred), and at some future date may be able to tell *Journal* readers what to lay a little money on.—GROWER.

Trade v. Private Growers.

One would think the exhibition tents are monopolised during the autumn shows with trade exhibitors from the fear in which this body is held! I know of but one trade grower who is an exhibitor of cut blooms; surely we cannot legislate for one person. I doubt very much if even he grows half a thousand plants, let alone the thousands pictured by "Fairness," page 34. I could mention at least a dozen private growers who cultivate more plants, have better convenience for housing them, and spend more money in the purchase of new varieties than does any one trade exhibitor. Does "Fairness" pit the exhibits usually seen at shows "not for competition" against those in competition either by this one trade grower or the leading private growers as disseminating the same amount of knowledge for the benefit of the younger generation? In answering the question asked by "Fairness" if I think it "an absolute necessity for nurserymen to compete with private gardeners?" I will ask him one: Should we see the same quality of Japanese blooms if this one exhibitor did not compete? Is it not an advantage to the general public to have such flowers as object lessons of what can be produced by knowledge, and a desire as well as opportunity to display that knowledge? Can "Fairness" name two trade growers who are qualified to compete in the best company? I say let us see the best produce, no matter from whom it comes. Object-lessons are desirable, and instead of grumbling because one person is your superior do as I used to—go in and beat these traders!—E. M.

A Birthday Episode.

I have been written to by many friends as to my intentions about joining, or what I think of, the National Potato Society. My last correspondent was yourself, Mr. Editor, and you ask, "Have I ought to say?" As it has been my custom to send you information chiefly about my progress regarding Potato crossing, for a birthday reminder that I am still active and interested amongst you I will take the opportunity to answer the inquiries of my friends, and say I have been a society within myself too long to care to "hark away." I do not doubt for a moment that the National Potato Society is in very interested and competent hands, quite capable of doing good in different ways. I propose to keep to the way that I know, quietly and with confidence pursuing the pioneering work that I originated in regard to the Potato species some forty-five years ago by artificial hybridisation. For the final results from the wild species last sent to me by Mr. Pringle from New and Old Mexico I have yet to wait, but feel confident that I shall succeed in perpetuating varieties from them worthy to compete with the present much-boomed kinds—having an advantage over them, in fact, by being endowed with fresh blood, so to speak, from new and northern latitudes in their composition. This is a material necessity.

To further show your readers that I have not been "resting on my oars," I will say that I have a host of new hybrid seedlings going through their probationary courses—one of them a cross between the wild species, Fendleri, and my thoroughbred old English seedling, the Rector of Woodstock. As I am an East Anglian I am looking forward to introduce it into commerce as "Fenn's Eastern Star"!

Dear old Dame Nature! she will take her time. If a pinion of a wheel of my watch was to break I could sit down and adjust a new pinion, or what not, at once. Dame Nature would insist upon seven years at least. And if you search through your columns you will find that she has kept me twenty-nine years already probing and watching for the "Eastern Star" with a daily sacrifice. Think of this, young men who intend to go a-wooing "the Cinderella of Nature."

It seems a far-away period to hark back to, but it may be as well to inform our young experts who do not know "Joseph" that I began my familiarity with the "Cinderella of Nature" by picking up Early Betty in my uncle's garden at the time Stephenson was running his initial steam engine on the Stockton and Darlington Railway on September 27, 1825. My love for the esculent has never ceased. I began in real earnest to study her ways and character in 1837, when she was becoming so stricken and weakened by the disease, and pessimists were prophesying her breakdown for cultivation and disappearance from off the face of the earth. I began my literary work by answering questions, by essays, by notes, for the preservation of our most valuable helpmeet, in the infant pages of the "Cottage Gardener," in 1850. I have followed up to now, through its agency, as the years rolled by, my experiences to my fellow man all that I knew or could find out anent the perpetuation of our chief esculent

for food, and it really does seem at last that importunity has "caught on."

Well, Potatoes, like the poor, we have always with us, and by improvements in tuber, good cultivation, careful winter storage, and by encouraging men to come back to the land, four times at least more bulk could be secured and stored to face its part against any scarcity of food that may be caused by untoward contingencies.

I had got on with my episode thus far when, by the irony of fate, I received a letter from the secretary of the Potato Society. I think what I have written will be an answer to him, and prove that I have long ago done, am doing, and I shall always be happy to do, all that lies in my power for the lasting interests and well maintenance of the "noble tuber."

Let me add how glad I was to read "our chaplain's" philosophical article introductory to the new year—to find that he is still spared for you and your readers. May his shadow never be less!—ROBT. FENN, Sulhampstead, January 23, 1904.

Matters of Moment.

THINGS THAT CONCERN US.

Excepting those members of the horticultural fraternity who live within or just outside the pall of London smoke, gardeners mostly lead quiet lives. The establishments in which they labour are chiefly situated in secluded places away from the rush of the world, and consequently the gardener lives very much alone. He learns tidings of how the gardening world wags through the medium of his weekly horticultural journal, and if he shuns the calendar of seasonable operations entirely, and dismisses the solid and sternly practical cultural articles with a cursory glance, it must be said of him that he greedily devours every scrap of news. Fresh departures, discussions, and items of current interest are what the country gardener delights in, and he trusts to his weekly paper to keep him posted up in the particulars of all important events as they take place. Our country gardener is not a great traveller; indeed, some boast that they have never had a holiday in their lives, and his chief outings are visits to neighbouring gardens, keeping judging engagements at local flower shows, with now and then a trip to London, the Mecca of horticulturists, the seat of gardening government, and the place that claims the best of what horticulture produces. The country gardener picks his time for his Metropolitan visit, which invariably takes place when the Temple Show or some other event that interests him is on, because at these times he knows he will meet with brothers of the craft with whom he can discuss the topics that are near and dear to the fraternity. I do not say that the country gardener feels the solitude of his life, or sighs for anything more exciting, because he is a busy man, and there is that in his occupation which keeps him interested; but, nevertheless, his immediate surroundings become his little world, and he is apt to look on the events outside it as matters which do not concern him.

Let us look into things a little and see whether this really is so. What did I read in the *Journal of Horticulture* for January 28? That out of 10,000 gardeners in the United Kingdom not 1,000 subscribe to the funds of the Gardeners' Benevolent Institution. Does this concern us? Yes, I think so. At the annual meeting on January 21, and the friendly supper which followed it, both Mr. Leonard Sutton and Mr. Harry Veitch enlarged on the good that the society is doing, but they pathetically pointed out the greater amount of good it might do if private gardeners would only recognise their responsibilities, and realise how much this matter concerns them. It must be said in all fairness to the wealthy section of the horticultural fraternity that they subscribe liberally to the charity, but they cannot be expected to do everything. It is the mites of the many that tell. Look at the money that is amassed by the members of the Salvation Army during self-denial week, and largely by people who can spare but little.

Again I ask, does this matter concern gardeners individually and collectively? The Scottish Horticultural Society, with its 1,200 members, has no auxiliary branch, so we are told on page 69, and in the majority of large centres in the country which are surrounded with gardens and gardeners nothing or very little is done, and yet only twelve out of more than fifty candidates could be elected, because the liabilities have so largely increased, and the committee could not see its way to go any nearer the reserve fund. This is mournful reading, and it concerns the private gardener.

It is no business of mine to enquire into the causes why the above candidates are in need of financial assistance, but few gardeners earn enough to save a competence for old age, and there is no need for a man to subscribe to the Institution with the sole idea that he is helping others. If he is doing this so much the better for him, but many gardeners who thought that

they would never be in need of it have been glad to accept the pension granted by the Institution.

Let us turn now to other matters of interest in the gardening world. The Royal Horticultural Society is building a Horticultural Hall in London, and is making a strenuous effort to pay for it. Gardeners, does it concern you? Mind you, I offer no opinion either one way or the other, but, like Rosa Dartle, I simply ask. That the new hall was wanted there can be no two opinions, and everybody, I think, will admit that the Royal Horticultural Society, with all its ups and downs, has done a good deal to benefit gardening and gardeners. Added to this it is obviously desirable that the new hall should be paid for outright and with as little delay as possible. Wealthy men have subscribed more or less liberally, but more money is wanted. Private gardeners cannot be expected to do much themselves, but supposing the matter concerns them could they bring any persuasive influence to bear upon their employers to subscribe, and thus aid the cause? or supposing the R.H.S. were to open a shilling or half-crown fund for working gardeners would they help to swell it? After all, it is a question as to whether they think it concerns them.

Some time ago a movement was set on foot for the establishment of a National Gardeners' Association, having various objects for the benefit of the fraternity. What headway the association is making I don't know, but a note I read recently from the pen of the secretary did not sound promising. It seemed to suggest that unless gardeners evinced a greater interest in it there was a danger of the project falling through. I offer no opinion as to the desirability or otherwise of establishing an association of the character, but my point is to set gardeners thinking. It is indifference that thwarts movements in these days, that tantalising habit of perching on the fence and waiting to see what somebody else is going to do. The promoters of the Association scheme can evidently see good in it or they wouldn't have started it, but if it is to be of any material benefit to the fraternity it must not be confined to a handful of London gardeners with an outsider here and there, but it must be far-reaching, and include in its ranks gardeners who pass their lives in comparative seclusion. In short, union is strength, and an association without union is useless. But does it concern you? that's the question. It is instituted by gardeners, for gardeners, and I take it, my reader, that you are a gardener, therefore it must concern you. Don't let the scheme be killed by indifference then, but take an interest in it. Get to know all about its objects and its purposes. Treat it as a personal matter, and then decide for yourself.

Another theme—Does the National Potato Society concern you? If you are a grower of Potatoes it must, and a seat on the fence is not the place for you. Look at the millions that are being spent in foreign countries for Potatoes; look at the ravages caused by disease; consider the necessity of keeping a check on the output of worthless or indistinct varieties, and the need of encouraging really good ones; think of the state of muddle that the classification of Potatoes is in, and the need of disinterested trials of new varieties; and lastly, remember how tremendously important the Potato is as a food commodity in this country. Can the newly-formed society do any useful work in the directions indicated? At any rate, it can try, but it cannot possibly carry out the objects it has in view without support, and not the support of a few, but many. Critics, pessimists, and grumblers are already busy in their work of condemnation, but heed them not, and ask yourself whether this is a matter that concerns you. At present the society wants members and suggestions, and if both of these are forthcoming I venture to say that good will be done—good that even the carping critic, who condemns everything that he does not start himself, will be glad to take advantage of. I have in mind other matters that I think concern us, but I have visions of the editorial blue pencil, and for the present must stop, with the mere addition of my signature.—G. H. H.

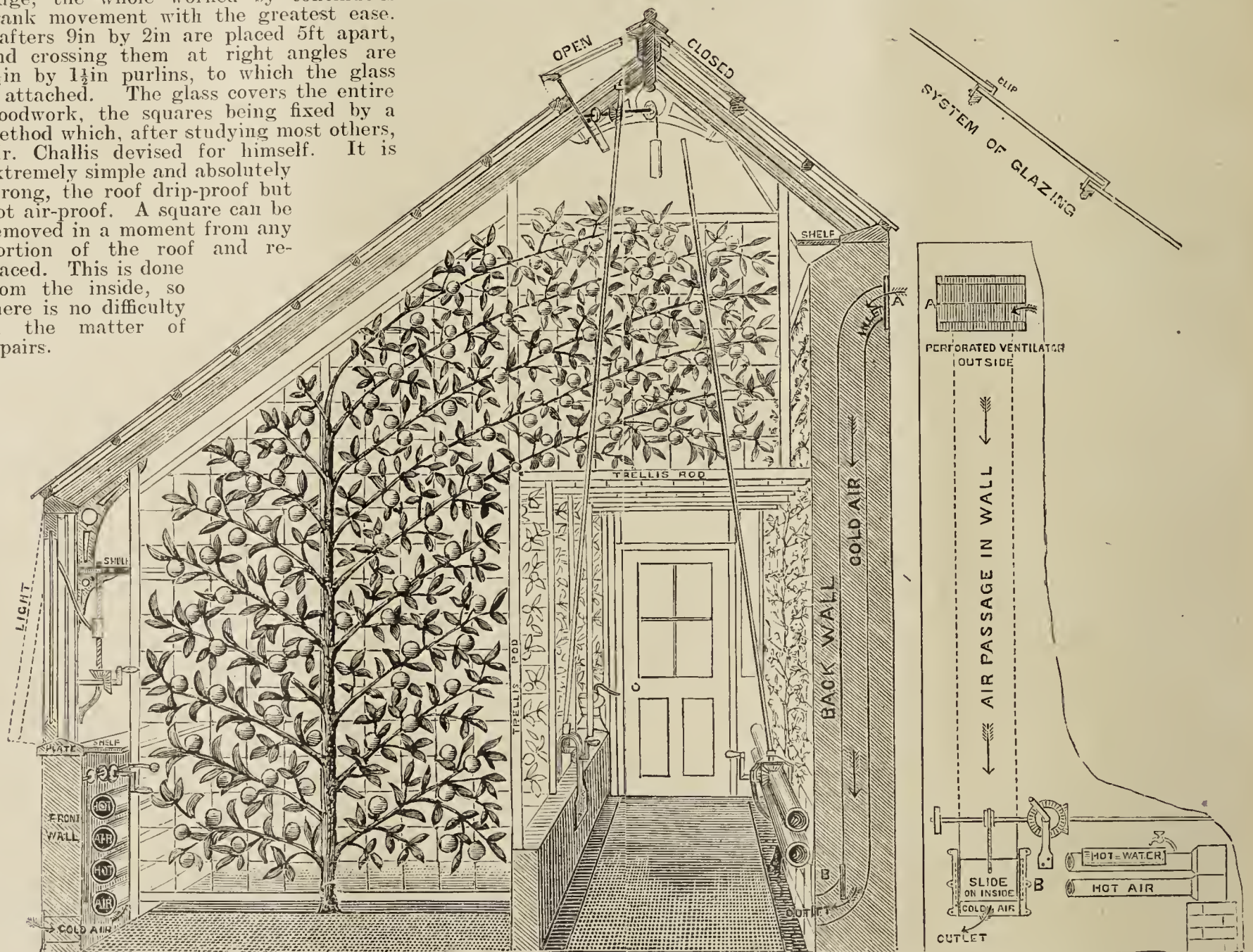
TO STUDY FUELS.—Professor B. T. Galloway, Washington, D.C., means to test fuels for greenhouse purposes. The Government investigators have an idea that any one of the several cheap by-products of oil refineries would make excellent fuel for greenhouses.

POTATOES FROM SCOTLAND.—Recently the ketch *Spartan* arrived in the Harbour with 100 tons of Scots Potatoes. This is a reversion to the old days, when there were regular shipments of Potatoes to Yarmouth from Scotland, in order that our growers might have a change of seed. The present strains of Potatoes raised in the district have been grown over and over again from produce of the same seed, a process that tends to the deterioration of the crop.

LUTHER BURBANK.—The Oregon Nursery Company, of Salem, Ore., the introducers of the Maynard Plum, originated by Luther Burbank, has raised a protest against that gentleman being designated, as he now very generally is, "the wizard of horticulture." The firm in question say let us call him rather "master of modern horticulture." Certainly no American has so successfully mastered and applied the great principles underlying the genealogy of plants.

Peach House at Wilton.

It is always satisfactory to possess good fruit houses, but failing that the next best thing to the gardener's mind is to hear or read of them, and it is for these reasons that we print the following notes from a *Journal* reader, together with an illustration. Referring to Wilton, he says:—"The range, which includes divisions for Peaches and late Grapes, must rank amongst the most complete and best in the kingdom. It is 200ft long, back wall 12ft high, front of the house 7ft, height to the ridge about 15ft, angle of roof 37deg. The back wall contains an air passage with perforated ventilators at the top on the outside, and at the bottom in the inside of the house. Provision is also made for a supply of heated air in front, apart from the ordinary method of ventilation, which is abundantly provided for both by the front lights and on both sides of the ridge, the whole worked by continuous crank movement with the greatest ease. Rafters 9in by 2in are placed 5ft apart, and crossing them at right angles are 2½in by 1½in purlins, to which the glass is attached. The glass covers the entire woodwork, the squares being fixed by a method which, after studying most others, Mr. Challis devised for himself. It is extremely simple and absolutely strong, the roof drip-proof but not air-proof. A square can be removed in a moment from any portion of the roof and replaced. This is done from the inside, so there is no difficulty in the matter of repairs.



Peach House at Wilton.

"The glass is fixed in copper slips that are secured to the purlins by nails of the same metal; two clips to each pane of 24in by 18in, the laps of the glass being immediately over the purlins. The clips are punched, slight elevated points being thus formed on the opposite side. On these the glass rests, hence a free passage is afforded for any condensed moisture to trickle through and on to the square below, while at the same time it follows that the space for the exit of moisture is available for the ingress of air. In a roof thus glazed there is small chance of the foliage of trees or Vines scorching, and the probability is similarly remote of the space between the laps being filled with water or ice, which in the one case seals the roof, and in the other is liable to cause breakage of the glass. The strength of this system of glazing was accidentally tested. A span-roofed Rose house was being covered. One side was done when a violent storm rose. Although the wind, which uprooted trees, blew directly on the under side of the glazed portion for hours, not a square was transfixed, and the safety of the method was established.

"The Peach house is trellised across the border from the

ground to the roof, also over the doors and path to the back wall, which also is wired and covered with trees. The vertical trellises are 5ft apart—that is, one under each rafter, and the light iron columns that support the roof act also as supports to the trellises next the walk. In one instance a double row of trees is formed across the border, the space between the trees being about a foot, and experience has shown that practically twice the quantity of fruit is obtained by this arrangement, or, in other words, the addition of a second row has not impaired the producing power of the first. This is a distinct gain, and it is certain that if Mr. Challis were erecting another Peach house similarly large and light, provision would be made for having double rows of trees across the border; indeed, it is not improbable that some scheme will be devised for having them now, the difficulty being to secure the edge of the trellis firmly next the path, as obviously the second row could not be in line with the supporting column under each rafter.

"Given a light roof this is unquestionably the best method of arrangement and planting a tolerably large Peach house, as not only can the back wall be covered with fruitful trees, but the trellis surface is much greater than by the common form of arching over the border or training the trees under the roof after the manner of Vines. By the single cross trellises and the occupation of space overhead, Mr. Challis has ascertained that he obtains three and a half times the bearing surface over that afforded by an ordinary curvilinear trellis formed over the border; and with a double row of trees the surface would be proportionally increased. The gain would, of course, not be so great in low and narrow houses; but the economical plan to adopt by those who desire the greatest amount of produce for their outlay is to erect wide and lofty structures as light as possible. But what of the trees in the house under notice? They had been planted three years, and every inch of the trellises was covered. Only twice before have I seen such rapid growth—once at Wortley, young trees grown by Mr. Simpson under glass; and previously at Oldlands, with trees on an open wall grown by Mr. Luckhurst, and in all three instances the fruit produced by

this generous system of culture was of the first size, colour, and quality. The back walls of the houses are covered with Figs which, receiving abundance of light, thrive satisfactorily.

"The varieties of Peaches and a few Nectarines which are found to give a long succession of superior fruit at Wilton are the following, which ripen somewhat in the order named. Early house: Early Beatrice, Early Louise, Hales' Early, Dr. Hogg, Grosse Mignonne, Stirling Castle, with Rivers' Early Orange and Elruge Nectarines. Second house: Royal George, Noblesse, Exquisite, Barrington, Walburton Admirable, with Violette Hâtive, Pine Apple, and Victoria Nectarines.

"As affording a better idea than can be conveyed in writing of the trellis arrangement in the houses in question, a figure is introduced of the end division. The top ventilating gear on the north side, which is not shown, being similar to that on the south side. The hot-air pipes and perforated ventilators are shown at back and front, and the arrangements will now be comprehended. The walls are of cement. The method of glazing is given except the indentations in the clips for forming the points on which the glass rests, instead of one pane resting on the other. This is a simple but important feature for the reasons above stated. The whole of the work was executed by workmen on the estate, with the exception of the heating, which was satisfactorily performed by Messrs. Weeks and Co., simply by an addition of pipes to the apparatus arranged formerly by them."

Vegetable Notes.

Globe Artichokes: Spring Planting.

In the vegetable garden in summer and autumn the Globe Artichoke plays an important part in the daily service to the kitchen. In order to maintain this supply an effort must be made to provide that at least a portion of the bed be youthful; that is to say, an annual course of planting is distinctly necessary. Old stools in their struggle with the vicissitudes of winter often make a poor effort to grow when spring comes round, even if they survive the ordeal, which they often do not.

In young plants there is greater vigour—and there cannot be too much in reason—and a constitution that can endure the rigours of winter, and assume strong leaf growth with the advent of spring that may be relied on to give heads for the dining room in greater or less regularity, according to the numbers grown. A point of importance we find in keeping up a healthy stock is to change the site often. Fresh soil is a great power in the growth of any kind of fruit or vegetable, and though this is so well remembered and acted upon with so many vegetables, it appears to be often overlooked as affecting Globe Artichokes.

It is at the same time quite true that while these grow with freedom, and give no particular trouble in the regularity of their crops in some soils, in others it is absolutely essential that the stocks be periodically removed to fresh ground and new sites. It does not repay the trouble to replant on the same ground, making up losses that may occur from year to year. That is not sufficient, and those who in the past have depended on material from beds so long retained will find matters much simplified if the change of routine outlined here is acted upon.

From spring planted stock we have found an unusually good autumn yield of fleshy heads, and for pheasant shooting parties in November these come in very serviceable for a change of dish. Seed raising is an easy matter; quite strong plants may be had in a season from a spring sowing, but the almost invariable rule is that they disappoint. They give the small, close-pointed heads which the chef favours not, nor cares to use. Once there is a stock of the true Globe, weed out all inferior plants, so that they cannot be extended to the exclusion of the better strain.

For the winter's protection a varied practice obtains; some will use straw litter, others leaves, bracken fern, or house ashes sifted. The last-named are particularly useful to protect the roots and crowns of the plants, because they are porous, and thus do not retain undue moisture, and they are to a large degree non-conducting, thus retaining soil warmth and staying the action of frost. Leaves packed up around them and lightly covered to prevent disturbance by the wind is a first-rate protection for anything tender.

In planting them a single crown with rootstock, when given an open station, well-mannred and deeply dug soil, soon increase in size, particularly if attended in accordance with the nature of the season. Last year the excess of rain and absence of droughty soils made an ideal state for the progress of newly planted stock.—W. S.



Figs under Glass.

At wide intervals during recent years I have sent to the *Journal of Horticulture* brief seasonable notes on Fig culture under glass. This I propose continuing, as though houses of Fig trees are not found in every gardening establishment, their cultivation is sufficiently extensive to make the observations of value. Obviously general details cannot be afforded unless a series of articles be given, and these might not have the same value as concentrated hints.

Earliest Trees in Pots.

The trees that were started in December being now in full growth, the points of the shoots must be pinched out when they have made about five good leaves. Where the stopping is likely to produce a crowded habit growths not required should be rubbed off whilst quite small. A temperature of 55deg to 60deg at night, 65deg by day, advancing to 70deg with sun heat, closing early, and allowing an advance to 80deg or 85deg, is suitable for the present. When the weather is dull afford a slight increase of heat in the early part of the day, so as to admit of a little ventilation, if only for an hour or two, to effect a change of atmosphere and induce sturdy growth. The bottom heat should be kept steady at 70deg to 75deg, introducing fresh sweetened leaves and litter as necessary. Syringe frequently to keep the trees free from red spider, and always sufficiently early to allow the foliage to become dry before night.

Early Trees in Borders.

The trees started at the new year have commenced growth, and the temperature slightly raised. A warmth of 55deg will be suitable at night, and 60deg to 65deg by day, with a rise to 70deg or 75deg from sun heat, and a free circulation of air, as a drawn and weakly growth cannot afterwards be rectified, and must be avoided by free ventilation on all favourable occasions, striving to secure a sturdy, short-jointed wood from the commencement. Syringe the trees twice a day on fine days, but when dull, morning syringing will be sufficient. The border will require copious supplies of tepid liquid manure, or watering through a mulch of lumpy manure not over 2in in thickness, so as to allow the roots to have the benefit of the air. Avoid, however, making the trees exuberant, as that is fatal to fruitfulness. In order to secure the free and certain swelling of the first crop of fruit keep the growths somewhat closely pinched—say at the fifth leaf—and rub off side growths not required to occupy vacant space, or to form the so-called spurs.

Second Early Border Trees.

The house to afford fruit at the end of June or early in July may now be started. The trees will afford a second crop of fruit in September, which will be very acceptable. If the trees have not had the old bare growths cut out, so as to leave the successional wood with its terminals for furnishing the first crop, and been dressed with an insecticide, these matters must have immediate attention. The border should be brought into a thoroughly moist state by repeated watering, if necessary, with tepid water, or where the borders are small and the trees large liquid manure may be supplied. Syringe the trees twice a day in bright weather, occasionally only when dull, but damp the floors and borders so as to secure a genial atmosphere. A temperature of 50deg at night and 55deg by day artificially is sufficient to commence with, advancing to 65deg from sun heat, with a free circulation of air.—GROWER.

Some Notes on Grape Culture.

In a lecture delivered before the Woolton (Liverpool) Gardeners' Society, Mr. Lambert, Bromborough Hall Gardens, dealt with the site of vineries as regards altitude, and claimed that an elevated position should be chosen, which would facilitate drainage, and protection in some measure from frost. Care should also be taken not to erect vineries, where possible, in near proximity to large trees, and the position chosen respecting the aspect should be south or south-western. The different styles of vineries he next brought before his audience, and advocated the "lean-to" for early work, both as regards pot Vines and those planted out.

For succession houses "lean-to's" should be built of larger dimensions. For midseason Grapes he contended that the span-

roof is best, and for late work the hip roof structure. Ventilation should be well arranged both top and bottom, and heating ought to be ample, as nothing, in the lecturer's opinion, was more disagreeable than when entering a vinery to smell the fumes of dry heat, which often occurred in sharp weather when the heating apparatus had been installed in a niggardly manner. The amount of piping should be regulated according to requirements, and where Grapes are wanted early it would be well to err on the side of liberality, always avoiding to place the pipes in near proximity to the Vine stems.

He next dealt with the borders, and advanced the system of having them inside and outside, and brought forward the original idea of erecting a temporary framework whereon to place lights, which would protect the early houses from heavy downfalls of snow and rain in winter, and also be beneficial in the autumn in keeping the borders in excellent condition for keeping late-hanging Grapes. The borders could with advantage



Beurré Baltet Père.

be raised above the ground level, and rest on a concrete bottom, the raising of the border giving facilities for feeding. Regarding depth of borders, 2ft 10in is amply deep enough, and 4in of this ought to be allowed for drainage. The composition of these borders should consist of sods from the best pasture available, and to one part of sod should be added a quarter of lime rubble, ½wt of bones to the load, and a good sprinkling of wood ashes; but in the case of shallow-raised borders less lime rubble is necessary. The drainage should be covered with sod, grass side downwards, to prevent any stoppage.

In making the borders Mr. Lambert contended they should be made in piecemeal fashion, and be made very firm, as loose borders encourage coarse roots and small bunches. In planting vines he prefers plants of the current year's growth, as very little disturbance of their roots is necessary, and they should be planted in May. His objection to autumn and winter planting is the loss of many of their fibry roots and consequent root-hairs, the latter very often being completely destroyed by the drying off process which fruiting is frequently subjected to.

The canes should be planted 4ft apart, and after planting thoroughly watered and mulched. When they have attained a

length of one-third of the space they are intended to cover, pinch out the point, which will enable them to develop side shoots, the leader being selected afterwards, and should be carefully attended to and encouraged to reach the top of the house. The following season bend the young canes in a horizontal position, attend to syringing and other details, and allow them to carry two or three bunches of fruit. The lecturer contended that nothing was of more importance than to get vines into "good ways early."

With regard to healthy, established vines, the main points advanced were the avoidance of all superfluous growths, and proper attention to ventilation (which should be given on all possible occasions). The practice of keeping the house and border dry during the flowering period he considered unwarrantable. Overcropping should also be guarded against, and vines of weakly growth should be encouraged by giving them a stimulant in the shape of top-dressing; also train in young growths from the base of the rods, and gradually cut off old spurs until they are finally replaced by the young canes.

Varieties for early work: Black Hamburgh, Madresfield Court, and Foster's Seedling; for midseason, Black Hamburgh, Muscat of Alexandria, and Duke of Buccleuch; and for late work, Alicante, Lady Downe's, and Gros Colman.—J. S.

Beurré Baltet Père.

A November Pear, and one often seen at exhibitions. The tree is of moderate growth, thrives on the Quince, and forms good pyramids, espaliers, and cordons. The variety crops fairly well in sheltered positions, and the fruits are large, brightly coloured, juicy, and rich.

Royal Horticultural Society.

Scientific Committee, Jan. 26.

Present: Dr. M. T. Masters F.R.S. (in the chair); Messrs. Gordon, Odell, Shea, Worsdell, Saunders, Michael, Bowles, Massee, Holmes, and Fraser; Dr. M. C. Cooke; Revs. W. Wilks and G. Henslow, hon. sec.

Codlin Moth in May.—Mr. Saunders made the following contribution to this subject discussed at the last meeting:—"I cannot find that more than one brood has ever been noticed in England of the Codlin moth, though two broods are common on the Continent and in America; and on the other side of the Atlantic three broods have been known. In this country the moth leaves the chrysalis in May, and lays her eggs very soon afterwards. The caterpillars are hatched in the course of a week or ten days, and remain in the Apple three weeks or a month; being full fed, they leave the fruit to fall to the ground, and make their way to the nearest tree stem, and crawl up it until they find a suitable place to pupate in. If they cannot find a tree, a post or paling or even dead leaves will provide them with a shelter. The object in putting bands round the trees is to provide the caterpillars with hiding places, where they may be found and destroyed. They are not sticky, but made of folded canvas or sacking, or even hay or straw bands, and should be put on as soon as any 'wind-falls' are found."

Maggots in moss litter.—Mrs. Horseley sent samples with enquiries. Mr. Saunders reports as follows: "The grubs found in the moss litter manure were those of a fly belonging to the genus *Bibio*, but I cannot tell the name of the species, several of which are very common; perhaps the one best known is the St. Mark's fly (*Bibio Marci*), so called from its generally appearing about St. Mark's day (25th April). These flies are quite black, and are rather more than half-an-inch in length; their bodies are rather thin, and the wings are not very transparent, and measuring about 1½in from tip to tip. They fly in a very clumsy manner, and may be found crawling over plants, &c., in great numbers for a day or two, and then they disappear altogether. The flies may be easily caught in a butterfly net. If poultry are kept, I should spread the manure about and let them pick and scratch it over, for they will soon pick out the grubs. Mixing nitrate of soda with the manure might be tried, but I am not sure whether it would have much effect on the grubs, as I have not heard of any experiments having been made on them. They are undoubtedly injurious to the roots of plants at times."

Coloured photos of Orchid.—Mr. Odell exhibited a colour photo of *Cypripedium insigne* Sanderae, executed by a new method. The yellow colour was very characteristic. It was received from Mr. A. S. Hickley, Kelso House, near Southampton.

Ixia diseased.—Mr. Shea showed leaves of *I. crateroides*, as being the only species with the foliage discoloured. There was no fungus present, the appearance being thought to be due to hereditary predisposition.

Eucalyptus with nodules.—Mr. Saunders showed small plants with nodules on the stem close to the ground. Nothing could be found inside. Mr. Massee observed that ants can cause similar ones on Roses, the formic acid acting as an irritant, and knots can be produced artificially.

The Japanese Larch.

* *Larix leptolepis* (Gord).—Quite hardy; in fact, less susceptible to spring frosts than *L. europæa*. Apparently also less liable to canker. Frequently planted during the past few years, but trees over ten years of age are rare. The oldest specimen appears to be at Tortworth, in the West of England, which is now about forty-one years old, 41½ ft. high, and 3 ft. 3½ in. in girth, at 4½ feet from the ground. Mr. Michie has been good enough to furnish detail measurements of two specimens planted at Balmoral in the spring of 1889:—

Year.	No. 1.—Height 20 ft. 7 in.; diameter at 4½ ft., 1 ft. 10½ in.		No. 2.—Height 20 ft.; diameter at 4½ ft., 1 ft. 7 in.	
	Growth in height (inches).		Growth in height (inches).	
1902	18		15	
1901	16		18	
1900	14		9	
1899	19		17	
1898	} Accident		18	
1897			19	
1896			21	
1895	23		11	
1894	18		24	
1893	19		24	
1883	18		20	

The foregoing table and comment are from the recently published quarterly "Journal of the Board of Agriculture." We now give part of the contents of a letter from Messrs. Dickson and Co., 1, Waterloo Place, Edinburgh (to whom we are indebted for the use of the illustration), who write as follows in answer to a request from us:—"The Japanese Larch, in our opinion, has many advantages over the European species. Some of them are as follows:—It is practically disease proof. We, ourselves, have never yet seen a plant of it affected by disease, although we have been watching it closely for the past twelve years. It is a much more rapid grower, and altogether a handsomer tree. When it loses its leader it finds a new one much more readily. The timber is equally as good, if not better, than that of the European. We have this season submitted cuts from a sixty-five-year-old tree to timber experts here, and they all agree in saying that they never looked at better Larch timber. Some people say that the plant is not so hardy as *Larix europæa*. Well, last spring was a good test of this. We may say that millions of two-year-old seedlings, and one-year Larch plants were destroyed by spring frosts all over the country (we, ourselves, suffered considerably); but we noticed particularly in two breaks, containing about 200,000 trees each one year, that the Japanese suffered only very slightly, while the European was rendered almost entirely useless. On comparing notes with

some of our friends in the trade we find that we are not alone in this experience."

Mr. John Simpson, author of "The New Forestry," who was one of the earliest to draw attention to the merits of this species of Larch, includes the following in his book:—"This Larch, which covers mountain tracts in Japan, has hitherto been described as a small tree between 30 and 40 ft. high and next to worthless as a timber tree. It has, however, been described to us, by those who have seen forests of the tree, as growing to a height of 60 or 70 ft., and some examples planted about fourteen years ago at Blair Drummond are now between 25 and 30 ft. in height, perfectly healthy, and showing no signs of disease though growing near diseased plantations of the common Larch. The rate of growth of these trees, and of numbers of younger trees growing at Wortley and elsewhere, indicate a tall tree of good bulk, ultimately, as the rate of growth in youth, of all the Coniferae, is always in proportion to the ultimate height of the species. In most respects the Japanese Larch strongly resembles the European species, is quite as hardy, and a more beautiful tree. We drew attention to it in the 'Field' and elsewhere some years ago."

CABBAGES TAXED 1½D. EACH!—An American contemporary says:—"Cabbages are being imported from Europe. There is a duty of 3 cents. a head." Yet there are rank "Free Traders" in England here! Ironic!



JAPANESE
The Japanese and European Larches.

EUROPEAN.

* From "Journal of the Board of Agriculture," December, 1903.

Societies.

National Chrysanthemum: Annual Meeting.

Mr. Shea presided at the annual general meeting, which was held in London on the evening of February 1. The report of the Executive Committee showed that a successful year's work could be recorded. The exhibitions were, on the whole, "decidedly creditable to the society." The Floral Committee held six meetings during the year, when nineteen first-class certificates were awarded. Arrangements have been made for continuing the meetings of the Floral Committee at Essex Hall in the present year. A catalogue was issued during the past year, and will be supplemented by carefully prepared lists which are to appear in the annual report. The annual outing of the society took place in July last, a party of 207 persons spending a delightful day at Park Place, Henley-on-Thames, by the kind permission of Mrs. Noble. The annual dinner, at which the president occupied the chair, was held on November 25, a goodly number of members and friends being present. Messrs. W. Cutbush and Son, Highgate Nurseries, generously contributed plants for the decoration of the hall, and other friends contributed fruit for dessert and flowers for the decoration of the tables. A deputation from the committee attended the exhibition of the French National Chrysanthemum Society at Lille during November, and were most hospitably entertained. The report of the deputation will appear with the schedule of prizes. The financial position of the society continues satisfactory; there is a balance in hand of £69 9s. 11d., with liabilities amounting to £5 9s. 0d. The sum of £4 7s. 6d. has been paid during 1903 on account of 1904. The reserve fund amounts to £115 15s. 11d., £100 on this being on deposit. The committee regret the loss by death of Mr. E. J. Bentley, who subscribed annually to this fund. Special prizes were given by the president, who continues his special first prize of £5 5s. 0d. in 1904; by Messrs. Mackenzie and Moncur, Messrs. E. Webb and Sons, Mr. G. H. Richards, Mr. W. J. Godfrey, Mr. H. J. Jones, and Mr. Robert Sydenham, all of which proved very helpful. Mr. P. Waterer's silver cups were won outright, and are now the property of the winners.

Four officers acting as a deputation from the committee have interviewed the general manager of the Crystal Palace Company in respect of the arrangements for 1904; the Company are willing to allow space for three exhibitions, as in 1903, and there is reason to believe the sum given for the November show will be augmented in the present year. It is also hoped that some arrangement may be come to with the Crystal Palace Company by which cheap railway and admission tickets may be provided for members and exhibitors. Should such an arrangement be made, a special circular will be issued to members and exhibitors setting forth these advantages and giving as far as possible the times of departure of trains from London. The matter of entrance fees will be considered, and on the recommendation of the Finance Sub-committee the sum of £50 will be added to the November schedule of prizes; a considerable number of new special prizes will also be added. It is the intention of the officers to seek the co-operation of the secretary and manager of the Crystal Palace in endeavouring to secure better facilities for the conveyance of exhibits to and from the Palace.

The suggestion that an exhibition of market Chrysanthemums be held shortly before Christmas is referred to the Schedule Revision Sub-committee for consideration and report.

The present number of societies in affiliation is 125; a few have ceased to exist owing to lack of local support. The present number of members is 631, viz., 75 fellows and 556 ordinary members, in addition to the foreign subscribers. An increase in the membership of the society is urgently needed.

The committee give their hearty thanks to Mr. C. E. Shea for accepting the office of president, for his special first prize, and for presiding at the annual dinner; also to other donors of special prizes. They also beg to acknowledge their indebtedness to the auditors, Messrs. G. J. Ingram and R. Cordwell, for auditing the accounts of the society.

Hull: Theory v. Practice.

At a meeting of the Hull Horticultural Society on Tuesday, January 26, with Mr. F. Judson in the chair, a discussion took place on the subject of "Theory v. Practice from a Cultivator's Standpoint," Mr. Barker, of Hessle, being the chief speaker. This gentleman dwelt at some length on the relative value of the two subjects, and showed himself strongly opposed to the idea that theory was of the utmost importance to the gardener. He contended that whilst botany did the gardener no harm it was nevertheless quite unnecessary for the practical man, and it was his experience that some of the finest botanists were wholly unsuccessful in gardening. The question aroused much enthusiasm, the majority of the speakers acknowledging that it was only by a happy and harmonious blending of theory and practice that a gardener could really become an accomplished and progressive cultivator.—W. R.

* * * The reports of a number of societies have unfortunately to be held over.



Seasonable Plant Notes.

CHRYSANTHEMUMS.—Now is a good time to insert a batch of cuttings to supply what are, perhaps, the most useful type of Chrysanthemums, viz., "bush" specimens. Free-flowering varieties, such as Niveus, The Queen, Lady Selborne, Elaine, and Anna Hartshorn as whites; Phœbus and W. H. Lincoln, yellows; with Source d'Or and Framfield pink; various forms of pompon and single-flowered varieties which are remarkable for freedom of flower. Such types as these are especially useful for the amateur, and also for the larger grower. Two cuttings in one small pot is a good way of treating this type; they can then be either grown on in a double way and make extra large specimens, or they are easily divided for single pots. The usual sandy compost made firm by the aid of the dibber and waterpot is all that is required in that direction to obtain success in this, the initial phase of culture. A hand-light in a cool house with the pots standing on ashes is quite the best site to root the cuttings in. Regular ventilation and just sufficient water to keep the soil moist are points not to be omitted.

The early batch of cuttings put in a month ago for the production of large blooms will now require more attention in the matter of ventilation. When roots are formed, which state is easily ascertained by the added growth and general stiff appearance of the leaves, the lights should gradually be removed until the cuttings or plants will stand without flagging. After a few days of this exposure, stand the plants on a shelf close to the glass in the same house where the plants will grow sturdily, which is the salient point in the foundation of the future plant. Watch carefully for insect pests—green and black fly are the more troublesome at this stage—using the usual remedy of tobacco powder, and dry sulphur for mildew.—E. M.

Fruit Forcing.

CHERRY HOUSE.—The Cherry (and Plum, with Apricot, which require similar treatment when forced) is impatient of fire heat in the early stages of growth, and requires abundance of air. This is an important matter, therefore commence ventilating at 50deg, allowing an increase to 65deg with proportionate ventilation, closing the house at 50deg, 45deg being sufficient by day artificially and 40deg at night. The trees advancing slowly from the end of last or beginning of this year, are now rapidly unfolding their buds, those previously forced coming into blossom, and will soon need attention in fertilising the flowers on fine days, using a camel's-hair brush, rabbit's tail mounted on a stick, or a bunch of feathers. Where the flowers are not expanded it is well to fumigate the house with tobacco, or vapourise with nicotine, so as to make sure that the trees are free from aphides, repeating at intervals of a day or two once or twice. The borders must not be neglected for water, giving a thorough, but not an over, supply, as necessary. Trees in pots—a very desirable mode of securing early Cherries—will require more frequent attention in watering.

CUCUMBERS.—Young plants are now ready for transferring to the hillocks or ridges in the Cucumber house, it having been thoroughly cleaned and the soil placed in a few days previously to become warmed. Press the soil firmly about each plant, place a stick to each, and secure it to the front wire of the trellis. If bright sunshine occur, shade lightly in the middle of the day to prevent flagging, and after the plants become established it can be discontinued, subjecting the plants to the full influence of the sun. Keep the night temperature at 65deg, falling to 60deg on cold and rising to 70deg on mild nights, and 70deg to 75deg by day, with 80deg to 90deg from sun heat, closing early in the afternoon with plenty of atmospheric moisture on fine days.

MELONS.—The early raised plants will now be ready for planting out, and require similar treatment to Cucumbers. Excellent Melons are grown in pits, with hot-water pipes for top heat, and the bottom heat furnished by fermenting materials.

PEACHES AND NECTARINES: EARLIEST FORCED HOUSE.—The maintenance of a comparatively low night temperature and a steady heat by day are essentials of safe advancement, and attention to fertilising the flowers, especially that of crossing, where there is a deficiency of pollen for securing a good set of fruit. In the case of late varieties still in flower they may have the camel's-hair brush, or other means of distributing the pollen, passed over them, keeping the house moderately dry with a circulation of air until the petals com-

mence fading, when a light syringing with tepid soft water will soon bring off the remains of the floral parts. Inside borders are a great advantage in early forcing, the trees always succeeding better than when the roots are in cold outside ones, and the fruit sets better in a lower temperature under those circumstances. Lost time (apparently) can be made up as the days lengthen and brighten; undue haste in early forcing often causes the loss of the crop.—G. A., St. Albans, Herts.

Kitchen Garden.

ONIONS.—No time should be lost in sowing these. In many gardens it is risky to sow in the open ground owing to the prevalence of the maggot. In such cases they should be sown in boxes and brought on slowly in a low temperature. It is a mistake to place the seed-boxes in a high temperature. The seedlings soon become drawn and weakly. Place the boxes in a house where the temperature does not exceed 45deg at night; here the seeds will germinate regularly, and the plants will keep sturdy if the boxes are placed near the roof glass as soon as the seedlings are well above the soil. In due course these should be placed in cool frames where the frost can be excluded. Every effort should be made to keep the plants from becoming drawn.

PREPARATION OF THE BEDS.—In the meantime the beds should be thoroughly prepared by trenching if not already done. Onions delight in deeply worked soil of good quality. Work in plenty of thoroughly decayed manure into the second spit, together with a liberal dressing of old soot. This applies to the seed bed as well as to where they will be planted from the boxes.

POTATOES IN FRAMES.—Another frame should be planted with early Potatoes, to keep up a succession. Take care that the heat is not violent; see that it is on the decline, or much harm may be done. There are many very excellent kinds of Potatoes in cultivation very suitable for frame culture. I find May Queen and Early Snowdrop two very reliable kinds. The sets should be very carefully prepared for this purpose. They should have been well exposed to light and air in a very cold place where the frost can be excluded. The soil should be light and rich.

PROTECT GLOBE ARTICHOKEs.—If not already done, these should be at once protected. Keen frosty winds from the east are far more likely to kill them than moderately severe frost. Dry coal ashes is an excellent thing to protect the crown of the plants. This, together with a little dry bracken placed loosely round the heads of the plants, will generally prove sufficient to keep them safe.

EARLY CARROTS.—A little seed should be sown on a south border. The soil should be well prepared, and if of a sandy nature so much the better. One of the early stumphorn varieties should be selected. Choose a warm day. The drills should be opened a few hours before sowing the seed in order to dry and warm them. Coat the seed with a little red lead, as previously recommended. This will prevent worms and other insects from destroying the seeds.

PEAS ON EARLY BORDER.—Another sowing of Peas should now be made to succeed those sown last month. One of the Daisy type is good for the present sowing. These produce large pods of better flavour than the small round kinds. It is always a good plan to choose a fine morning for sowing seeds.

LETTUCES AND RADISHES.—A small quantity of these seeds should be sown on a warm border. Sow the seed somewhat thicker than will be the case later in the season; the soil, being cold, a certain percentage will be likely to fail.—A. T., Cirencester.

The Flower Garden.

CLEANING FLOWER BEDS.—After a long period of changeable weather the surface of flower beds will be in a more or less untidy condition with accumulations of leaves which have blown from adjoining borders of shrubs and trees. There will also be a proportion of yellow and withered leaves upon the plants with which the beds are furnished. If these can be conveniently removed it will be desirable to do so, leaving the plants much improved in appearance. Stir the soil among them when the surface is dry, and work the soil neatly from the grass edges of the beds.

RELAYING TURF.—There are sure to be bare or uneven spaces in grass lawns where the turf either needs replacing or the ground requires levelling. The ground should be broken up, and if additional soil is necessary, this should be of good quality, good rich loam being the best. Tread it down firmly, and bring the spaces to the proper level. The turf should be cut of even thickness from a pasture where clean grass thrives, and obnoxious weeds are absent. If a few undesirable weeds are present in the turf, these are readily withdrawn from the

turves before laying them down. Rake off rough stones and other material, leaving a fine tilth. Similarly fine material should also be in readiness for raising the turves if necessary. Fit them as closely together as possible, and fill up all interstices with suitable pieces of turf. Afterwards bind closely together with a turf beater. Turfing can only be done when the weather is mild, and the surface of the ground to be laid is not sticky with rain or a recent thaw.

MOISTENING ROOTS OF CLIMBERS.—Growing against walls and fences, or in places partially sheltered, and in some cases too much shielded from rain, climbing plants, especially Roses, frequently suffer from a deficiency of moisture at the roots. This is a great cause of weakly growth, and should, if possible, be rectified by affording at the present time, during mild weather, a copious soaking of liquid manure. The good effects will be seen in vigorous and improved growth during the season, and a more floriferous condition during the following if not the present season. The liquid is not only good for climbers, but for other hardy plants which need assistance. Failing liquid manure, plenty of water may be given, loosening the ground on the surface to prevent it trickling away. The latter should also be done when applying the more valuable fluid.

SOWING SWEET PEAS.—An early sowing may now be made outdoors, selecting a sheltered warm border for the purpose. A few short rows will be sufficient if they succeed well. Cover the rows at once with wire guards. Sow also some seed in 3in pots and grow steadily under glass protection, gradually hardening the plants, and planting out in rows at an early opportunity.—E. D. S., Gravesend.

Young Gardeners' Domain.

The Editor welcomes short letters from young gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

Scottish v. English Gardeners.

In answer to the critical remarks made by "An Old Boy" under this heading on page 62, I shall take the bull by the horns. "Old Boy" answers my question, "Why are Scottish gardeners preferred to English?" by asking, "Are they?"—a very evasive answer indeed, which reminds me of a gentleman who requested his Irish servant to make evasive replies to callers. Upon the first person calling to know if Mr. — was at home, Pat asked him if his grandmother was a hoot-owl! But the question, "Why are Scottish gardeners preferred to English?" remains to be answered fully. I am pleased to learn from "An Old Boy" that his own experience has proved to his satisfaction the reverse of my statement that "nine-tenths of the young men in England spend too much time in public-houses and in pleasure seeking"; but I reiterate that this statement has been admitted by men of no mean position with regret; and, furthermore, these men have an experience equal to that of "An Old Boy," as these islands have been traversed by them many times. I have no doubt that my "unquestionably too limited experience" is of little weight to "An Old Boy," but that sort of gag I can swallow. I might add that out of the nine-tenths of young men who spend too much time in public-houses and pleasure seeking I had the best of "chums," and, indeed, far better fellows than your professed teetotalers, their only fault being that they spent too much of their time in public-houses—a fact that some have since admitted.

This is but one instance of many in my "little experience," and one more is that the "T.T.'s" are in numerous cases "terrible tipplers." In conclusion, I congratulate "An Old Boy" on his good works, and I trust he will succeed in persuading the young men in England to spend less time in public-houses and betake themselves to study; and may they remember this motto (which is applicable to many things): "Use, but don't abuse." It will be seen from this discussion, as is seen in most others, that there are two opinions on one point. Therefore—

Convince a man against his will,
He's of the same opinion as ill.

—Scot, Berks.

I think your correspondent "Scot" would be better employed learning his business than asking senseless questions such as "Why are Scots gardeners preferred to English?" "An Old Boy" very pertinently enquires, "Are they?" and I leave "Scot" to answer that enquiry, and pass on to notice his remarks about the drunkenness which he says prevails in bothies south of the Border. Now, I am probably old enough to be "Scot's"

father, and I have no doubt I was at my business before he was born. All my days as a junior were spent in England, and I have been in Scotland for a good many years as head gardener. I may, therefore, claim to have a fair knowledge as to the habits of young English gardeners and their Scottish brethren. Well, my experience is that one is as good as the other, and there is nothing to choose between them. Gardeners are, as a rule, a steady, sober class of men, from whatever part of the United Kingdom they come. I must, however, add I am sorry to do so, that I have seen more drunkenness in Scottish towns and villages than I ever saw in similar places in England. Only a few days ago I saw a young boy of twelve quite drunk, and this in a village. What do you think of that "Scot"?—NORTHERN GARDENER, Ross-shire.

THE BEE-KEEPER.

The Stewarton Hive.

Below are enumerated the many advantages claimed for this hive:—

(1) It is asserted that it is the cheapest, best, most successful in producing comb honey, easiest handled, neatest, that the harvests obtained from these hives are always considerably larger, and that the honey is finer in quality.

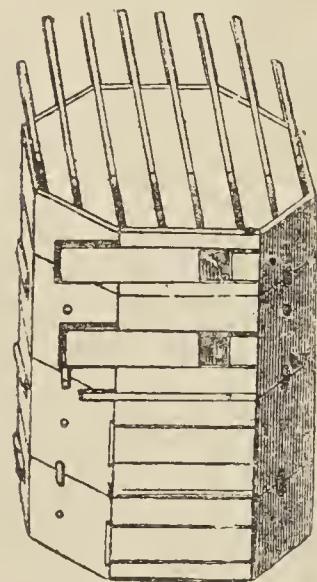
(2) That a colony in a Stewarton hive has stored a good quantity of surplus honey while it was necessary at the same time to feed stocks in bar-frames; and that more satisfactory results can be secured with less expenditure of time and labour on the part of the bee-keeper than by any bar-frame system.

(3) That the hive possesses remarkable powers of expansion and contraction, and that it is an easy matter to prevent swarming,

while the protection afforded by the outer casing also decreases the probability of swarms issuing, and that by altering the angle of the roof, which is moveable, a current of air can be sent through the hive, which in the very warm weather still further tends to reduce the swarming impulse.

(4) That colonies lived in these hives winter better than in bar-frames, as the crown board allows the heat to escape in the summer and the moisture in the winter, and the shape of the hive being octagonal is said to be superior to the square or oblong for wintering, as it is nearest to the shape of a natural cluster of bees, and that the smallness of the Stewarton boxes enables the bees to maintain a higher temperature with less expenditure of energy than in a bar-frame.

(5) That there is the greatest simplicity in uniting bees with the sides and the boxes, the slides, which are very ingenious, being considered one of the valuable features of the Stewarton



Stewarton Hive.

THREE STOCKS & ONE SUPER.

system, together with complete interchangeability in all parts of the hive.

(6) Again, it is maintained that colonies build up in the spring more rapidly than in a bar-frame hive, stocks coming out from winter quarters stronger numerically, which gives them a start which they never lose during the rest of the season; that they will extend the brood downwards more quickly than laterally, and as the heated air ascends from the cluster working below protects the brood above, and sudden changes to cold weather do not interrupt comb building.

(7) The method of supering without queen excluder is also included amongst the advantages of the hive. The two outer slides of the boxes only are drawn, and the bees admitted to the supers. This is advantageous, because they do not enter the honey chambers until they are strong enough to cover the outside bars of the brood chamber, they then enter nearest to where they begin work, and finish the supers in the middle or completely at once.

It is an interesting fact that Scotland has the unique record of having produced and exhibited the finest supers of honey in the world, and this is ascribed in part to this hive and method of supering, by which the varied descriptions of honey are classified as stored by the bees in regular gradation free from all the impurities of the breeding boxes. The beauty and purity of these octagon supers were celebrated far and wide, and it is on record that for two years in succession, from six stocks in Stewarton hives, £41 profit was obtained each year; and in another case as much as 250lb of honey was taken from one stock in one season.—E. E., Sandbach.

TO CORRESPONDENTS

* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

CHEMICAL MANURES (W. A.).—We must examine your samples, and will let you know.

MEASUREMENT OF AN ACRE (Planter).—Ten yards wide by 484yds long; 60yds wide by 80yds long; or 100yds wide by 40yds long.

"ORIGIN OF CULTIVATED PLANTS" (J. B.).—The latest edition of A. de Candolle's work is that of 1886, which is the second. The price is 5s. from the publishers, Regan Paul, Trench and Co., Dryden House, 43, Gerrard Street, Soho, London.

COVERING A HILLSIDE WITH GORSE FOR COVERT (Planter).—We would advise sowing seed broadcast (4lb per acre) about the middle of April. Naturally, there should be some sort of preparation of the ground; if not over every part at least in fairly extensive patches, and the intermediate, unbroken spaces may be sown more thickly.

"NITRAGIN" (Young Gardener).—This is the general name given by Nobbe to those bacterial soil fertilisers which have been studied and named during recent years. Germany has made nitrugin production a special manufacture, if we may so put it; and small bottles filled with the nitrugin germs (gelatine cultures) can be obtained from certain sources. They cost 2s. 6d., and one is sufficient to supply half an acre of land. Gee-up!

THE PLURAL ENDING OF THE WORD POTATOES ("System").—We think we are justified in using the "e" by the following rule from C. Duxbury's "Advanced Grammar" (12th edition): "Singular nouns ending in s, sh, ch (soft), x, or o, preceded by a consonant, form the plural by es; as glass, glasses; box, boxes; and other instances. The exceptions are canto, grotto, quarto, portico, solo, and tyro." Probably your opponent may be able to make a case on his side!

DOUBLE SULPHATE OF POTASH AND MAGNESIA (F. C. C.).—Double sulphate of potash and magnesia is a more concentrated form of potash than kainit, and is a refined kainit, differing in some essential points, as you may glean from the subjoined analyses:—

DOUBLE SULPHATE OF POTASH AND MAGNESIA.			KAINIT.		
Moisture	..	4.70	Moisture	..	12.70
Sulphate of potash	..	49.34	Sulphate of potash	..	23.60
Sulphate of magnesia	..	32.86	Sulphate of magnesia	..	14.50
Muriate of soda	..	3.77	Chloride of magnesium	..	12.40
Muriate of potash	..	0.13	Chloride of sodium, common salt	..	34.60
Sulphate of lime	..	5.35	Sulphate of lime	..	1.00
Magnesia	..	0.99	Insoluble matter	..	0.50
Insoluble	..	2.97			100.00
		100.00			

Now form your own opinion as to whether you will find "ordinary kainit good enough" for Vines. We have not, do not recommend it, but the double sulphate of potash and magnesia, the magnesia being not a much less factor in successful Grape growing than potash, and its persistent presence in all soils noted for the production of Grapes is a matter of serious consideration. Indeed, too much care cannot be exercised in purchasing potash salts, as some so-called sulphates contain as much as 86 per cent. of common salt. No wonder, therefore, you did not derive any advantage from the use of dissolved bones and ordinary kainit. Our formula of three parts dissolved bones, dry and crumbling, and two parts double sulphate of potash and magnesia, has been found of essential service where Grapes have not finished well, being deficient in colour, in previous years, overcropping not being the cause, and the border and other conditions being favourable, the mixture should be applied as a winter top-dressing at the rate of 4oz to 8oz per square yard and pointed into the soil, and this dressing may be supplemented by such quickly-acting top-dressing as a mixture of three parts superphosphate, two parts powdered saltpetre, and one part ground gypsum or sulphate of lime mixed, applying 4oz per square yard at intervals, say, (1) when the Vines are coming into leaf, (2) when the Grapes are thinned, and (3) when the stoning is completed. For the double sulphate of potash and magnesia apply to Messrs. Henry Richardson and Co., Skeldergate Bridge, York.

SEAKALE FORCING (A Very Old Subscriber).—One of the commonest forcing methods is to secure good even roots about 5in or 6in long, and to place these a few inches apart on end, firmly among leaf soil, in deep boxes or in benches. In either case they are forced in the dark, the temperature of the shed or house being 60deg to 65 Fahr. The soil must be kept moist. Another method is to cover the crowns in the open ground with tall, large pots, or better, cans, specially made for this purpose, about 2ft high and 15in or so wide at the base. These have a top lid. The cans are covered on all sides and above as well, with fermenting material, which soon causes succulent growth to start. The heat can be kept up by additional material at intervals.

DAFFODILS NOT FLOWERING SATISFACTORILY (Mrs. C. M. H.).—It is probable that the bulbs have not been well ripened on their growth during last summer, this being unusually dull and wet; or they may have been taken up, or the foliage cut off, before the growth was completed and had died down naturally. This would prejudicially affect the flowering, the flower buds not being perfectly formed, and flowers produced be puny and defective, if not really "blind," that is, not developing the flowers in the scape, but the buds turning yellow and withering. This, we think, is the most likely cause, though it sometimes arises from other causes, such as "basal rot," the bulbs rotting at the base more or less, and there being few or no roots formed for the support of the leaves and flower stems; hence the collapse of the flower buds. In other cases it may arise from attacks of fungi on the bulbs, and in not a few cases is the mischief caused by root mites, these pests destroying the young roots, as well as causing decay by harbouring and feeding between the scales of the bulbs. On these points we can offer no opinion, as you do not submit specimens for examination.

NAMES OF PLANTS.—*Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number.* (W. W.).—*Cypripedium Leeae* variety. (F. G. A.).—*Lantana* sp. probably, but as you have sent only two dried leaves, we cannot name definitely. (Sister).—Leaves of *Leucadendron argenteum*, R. Br., the Silver Tree. (J. Pringle).—1, *Begonia socotrana*; 2, *Sansevieria javanica*; 3, *Aganathus umbellatus variegatus*. (L. F.).—*Abies balsamea*. (F. S.).—Next week.

Trade Catalogues Received.

John Allen, Kippen, Stirlingshire, N.B.—*New Dahlias*.
James Cocker and Sons, 130, Union Street, Aberdeen.—*Seeds, Florists' Flowers, &c.*
Dobie and Mason, 22, Oak Street, Manchester.—*Seeds*.
John Forbes, Hawick, Scotland.—*Florists' Flowers*.
H. J. Jones, Ryecroft Nursery, Hither Green, Lewisham, S.E.—*New Chrysanthemums, Seeds, and Plants*.
H. P. Kelsey, Beacon Buildings, Boston, Mass., U.S.A.—*American Shrubs and Plants*.
W. C. Mountain, F.R.H.S., Bulb Grower, Constantinople.—*Bulbs for delivery next July*.
Vilmorin-Andrieux and Co., 4, Quai de la Megisserie, Paris.—*Seeds*.
Wells and Co., Ltd., Earlswood Nurseries, Redhill, Surrey.—*Chrysanthemums (supplement to the Descriptive Catalogue)*.

Atmospheric Nitrogen.

The gradual but ultimately inevitable exhaustion of the known nitrate deposits of South America lends a growing interest to the methods which have been devised for obtaining a supply of nitrogen for fertilising purposes, from the inexhaustible storehouse of the air. That this can be done as a scientific process has long been known. The first method was by passing a current of air over red-heated copper, whereby the oxygen combined with the metal to form oxide of copper, leaving the nitrogen free. At first the nitrogen thus produced was fixed by combination with calcium carbide to form nitrate of lime (Kalkstickstoff) or calcium cyanide, a combination of lime carbon and nitrogen, which had all the essential properties of a nitrate fertiliser. But as the use of calcium carbide rendered the product unduly expensive, a method was sought which would employ a substitute for that material, and this was found by Dr. Erlwein, who brought the nitrogen into a combination with a mixture of powdered charcoal and lime in an electric furnace. The product of this combination is a black substance containing, besides the lime and carbon, 10 to 15 per cent of nitrogen, in perfect condition to be used as a fertiliser. From the experiments thus far made with this new artificial nitrate—which is known in commerce as calcium cyanide—it appears that its nitrogen acts upon plants quite as effectively as that contained in a proportionate quantity of nitrate of potassium or sodium nitrate (Chile saltpetre). The scientific problem of obtaining nitrogen for fertilising purposes from the atmosphere would seem, therefore, to be satisfactorily solved. Whether it can be done on a very large scale and at a cost which will make it economically available for general agricultural purposes remains to be demonstrated by practical experience.



Mr. Edward Brown on the Poultry Industry.

Mr. Brown is always full of interesting facts, and as these facts are founded on personal observation they should merit a large degree of public attention. We say public attention because it is not by any means the farmer alone who is interested in the poultry industry. It is a widespread industry, and happily an increasing one. It affords pleasure and profit to great and small, and better still it is an immense factor in the well-being of a nation.

Just now there is a widespread agitation with respect to the mal nutrition of our dense populations. The artisan population, who ought to supply our bone and muscle, are developing not into stronger, better men and women, but are actually deteriorating, and this in face of the stores of cheap food dumped upon our shores. We have the food, but through ignorance, stupidity, and in a lesser measure, poverty, we do not get hold of the right constituents for the building up of the human frame.

Shall we make a mistake when we say food, the best food, should be attractive, palatable, and fairly cheap? We do not know if milk can be accounted attractive, but in some of its forms it surely is; and it is certainly palatable and cheap; yet it is grossly neglected, and its place supplied, or rather filled, by very inferior substitutes. Now, we are inclined to think that what Mr. Brown calls "hen fruit," i.e., eggs and fowls, fulfil all these requisites. Please do not exclaim just yet, kind reader; we know you are inclined to fall foul of our word cheap. Just consider the relative values of eggs v. meat—a pound of eggs against a pound of meat. We fancy that many (we should like to say all) house mothers could turn the pound of eggs into better and more varied dishes than they could the pound of meat, which in all probability will have a certain percentage of bone and gristle. Then the price—it is not often we buy any form of good meat (and the best is the cheapest) at less than 8d., and we sell far more eggs at a fraction of 1d. than we sell at 1d. Now, again, there will be cavilling at the winter price of eggs. Well, even then, we contend that by the use of waterglass preservative the domestic egg is still cheap. It has been stored at a time when eggs were selling at eighteen or nineteen for 1s, and it comes out after nine months' confinement as fresh as paint!

As for the flesh of fowls, it may not be so absolutely nutritious as that of the best beef or mutton, but it is infinitely more tempting to the capricious appetite, and with its nice et-ceteras of sauce into which milk largely enters, the bacon, the egg-prepared stuffing, we doubt whether there is a great deal of difference—unit for unit.

There is one way in which the householder may acquire his poultry more cheaply (that is if he does not breed it himself), and the way is to buy direct of the farmer or cottager; undressed, in the rough. In fact, the householder, or rather his servants, may demur at this; but surely after all, poultry dressing is not a whit more difficult than the dressing of game birds, and they are bought, or received as presents, fully clothed. It is surprising how quickly a latent talent for poultry dressing may be awakened if the maid sees her mistress willing to take one fowl while she takes the other. A duck is a bit tedious to prepare we allow, but the difference in price between dressed and undressed will be very consoling.

We find from statistics that the cult of the goose is on the wane. He is a hardy bird, easily reared, easily fed, and makes a real good family joint, especially if supplemented with savoury pudding. Of course, we do not want telling that the meat is coarser than that of the duck, but you get in cheapness what you lose in quality; in fact, in a hungry family of boys and girls we doubt if his coarseness would be detected! To those who do not rear geese (the feathered ones) we might observe that flocks of foreign ones, as well

as Irish, land on our shores every summer, can be bought very cheaply, and take but little fattening-off on our English stubbles. Feather beds are out of fashion, but pillows are still other than blocks of hollowed wood, and sofa cushions are in demand, so that the white soft covering, carefully dried, is a valuable asset to the thrifty housewife.

We have passed on from eggs, but with the reader's permission will just revert to that topic. Winter eggs: Now, although winter eggs are and can be produced, we really do not know why there should be such an outcry for them except for culinary purposes; a winter egg is very devoid of the real egg flavour. No artificial food can come near that of fresh greenery and fresh delicate insect and worm. We take it that no epicure could fail for one moment to differentiate between the flavour of a November egg and one laid in April. New Potatoes are at times a fraud; out-of-season dishes never satisfy except the purse-proud. In our own household a boiled or poached egg is rarely consumed in winter; not because they do not exist, but because other delicacies are in season, and the egg "hoff." Once get the spring again, and then there is "egg" galore! This is, perhaps, strange heresy, but there is a germ of truth in it after all! It possibly is that we country folk get a bit more fastidious than the town folk. We know we should not care for a great deal of their milk and vegetables, which before they reach the table have known the vicissitudes of much travel.

Mr. Brown furnishes us with some startling statistics as to the consumption of eggs in Great Britain—250,000 tons in one year. Some few are used in manufactures, but only a very small portion. The weight of poultry consumed during the same period was 63,000 tons. This looks much out of proportion to the egg weight, and the egg weight is nearly all gain, the aggregate shell weight falling far below that of bone and feather of fowl.

Mr. Brown is also glad to note that there is a better spirit, i.e., the spirit for improvement, among poultry raisers, especially in Ireland, where the premium farms are disseminating a better class of fowl. We sadly want a movement here of similar nature. So many people keep fowls, but they are all "wrong 'uns" as regards utility. They may be ornamental (this we doubt), but useless we know. We have had ourselves trouble about the disposal of eggs; the local market meant low prices—so many middlemen—and the only way that appeared to be any better was the direct sale to a large town firm. That was better, but as we could not persuade any neighbours to co-operate, except for a week or two (they found the packing tiresome), there was a difficulty about the carriage of small lots at wholesale prices. Had ours been French or Danish eggs, anything but the Shires, we should have got far more profitable terms from the railway companies.

There is another way, too, in which small farmers are handicapped. In summer months their butter may be decidedly soft (they have no appliances for keeping it firm), and consequently when it goes to the nearest shop in a little town the buyer will only give a decent price for it on condition that he has the offer of the eggs too. They are said to "harden the butter," i.e., make less chance that the butter does not lose money. We have seen this done times and times again, and Mr. Brown mentions it as one of the antiquated forms of marketing. We cannot blame the buyer. We know, alas! how often the small parcels of butter mean actual loss, for deterioration has already set in, and unless the sale is rapid the oily, unsatisfactory butter goes out as cart grease. On the other hand, the eggs are made to keep till wanted. Not being sold by weight their value is not visibly diminished.

The import business in poultry, game, and eggs is something enormous, and is still increasing. Mr. Brown says there would seem to be no limit to the growth of imports from abroad, and he gives the money values for the last three years as obtained from the Trade and Navigation returns:—

	1901.	1902.	1903.
	£	£	£
Eggs	5,495,767	6,308,985	6,617,619
Poultry and Game ...	980,757	1,059,044	1,203,086
Totals	6,476,524	7,368,029	7,820,705
Increase over 1900 ...	61,054	951,561	1,404,237

According to other elaborate calculations each family of five Britons has an egg bill with a foreign country of 18s. per annum, and this in addition to home-grown and Irish. If people are not learning to buy milk fast enough, surely they are learning the value of the egg!

We usually find about Christmas time that there is a large influx of foreign turkeys. Perhaps the influx was not as great as usual, for we have heard many complaints as to the scarcity of turkeys. Those fortunate folk who had fine large, well-fed birds have had an excellent market for their wares. Turkey rearing will never become very popular with the masses, for it demands a good amount of care and forethought; it is one of the callings specially adapted for those people who attend personally to every detail, and leave nothing at the mercy of hirelings.

We are at the threshold of a fresh breeding season—it cannot well be worse than the last. The bad weather in the early months affected the vitality of the eggs; summer we had none, and young chickens, like every other young things, thrive best in sunshine. There was rain enough at any rate for young ducks, but it is quite possible even for them to have too much. We have seen no statistics as to turkey rearing, but certainly the cold, wet season would have a very adverse effect. The turkey chick can stand at one stage no exposure to damp, even an untoward shower may cut short its career.

How seldom we see guinea fowls, and yet what useful birds they are when game is in demand. It is many years since we tried our hand with them, and we found them almost as bad to keep in a prescribed area as a mountain bred sheep. Their note, too, is peculiar and not altogether pleasing. One strong point to which Mr. Brown refers is the growth of hatching establishments where rearers can procure young birds without the risk and trouble of hens or incubators. This is division of labour with a vengeance!

Work on the Home Farm.

The weather is more favourable for spring work, although the land, except that of a sandy nature, is none too dry. The chief work now is crossing the fallows with the plough or cultivator, and ploughing turnip land behind the sheep. This latter work is much more satisfactory than it was, the sheepfolds now providing both a good lair for the sheep and a dry surface for the plough to turn over.

There is much difference of opinion just now as to the value of steam cultivation compared with deep ploughing with horses in preparing ley for the Potato crop. The advocates of the plough affirm that land which is inclined to be heavy is more liable to run together under the influence of heavy rain than land ploughed deeply in the ordinary manner. We do not believe it, but contend that the cultivated portion of a field would, after a suitable period of rest, be more easily brought into a fine state of tilth than another portion deeply ploughed at the same time. Any imaginary advantage in favour of the ploughing is usually produced by a difference in the conditions under which the work has been done, or by a difference in the time since it was done. By cultivation we mean a thorough upheaval of the soil with digging tackle, whereby the surface is left in such a state as to make walking over it very laborious.

There has been a lull in the Potato trade, and deliveries are now on a small scale. The cause is a large arrival of foreign, and we are advised that very good new Potatoes are coming in from Guernsey; but we need not fear any serious competition from that quarter.

Roots are disappearing quickly, and as mangolds were such a moderate crop, we shall have none too little natural food left before grass time comes round. There is plenty of hay and clover, but farmers have been warned against the use of clover hay for sheep, and it has frightened them a little. We fancy that the scare about clover has been caused by the use of coarse trifolium or cowgrass, and that no ill-effects would have followed the use of the ordinary broad-leaved clover.

In the absence of other employment we have got a great deal of work done to the fences, and except for the carting away of surplus thorns all is completed. A few gates require rehanging, but they are now in the shed under process of painting. Our butcher tells he has killed 106 pigs this winter for farmers and labourers, yet pigs and pork are plentiful, and likely to remain so.

A WAR OFFICE STUD.—The result of a conference between the War Office and the Board of Agriculture would appear to be the establishment of a national stud. The Government is convinced that the time has arrived for it to breed its own army horses.

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Barr's "Lightning" Runner Bean .. per pt.	2 6
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Barr's Dwarf Thick-leaved Summer Spinach .. per oz. 4d., per pkt.	1 9
Barr's "Long Keeper" Onion .. per oz.	1 6
Barr's Selected Miniature Cos Lettuce, per pkt.	1 0
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2/6 and 3/6 each; 30/- and 36/- per doz.

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ALTRINCHAM & MANCHESTER



Journal of Horticulture.

THURSDAY, FEBRUARY 11, 1904.

Plum Culture.

PAST experience has shown that the consumption of Plums increases quite as rapidly as the supply, provided the latter is properly distributed. Next to the Apple and Pear, the Plum is probably our most valuable British fruit. In common with other orchard crops, the requirements of the Plum tree, as regards plant food, are chiefly nitrogen, phosphoric acid, and potash, and these essential elements must be present in the soil, not only in fair quantities, but in more or less readily available forms, if vigorous growth and an abundance of fruit is to be expected. In addition, lime is frequently of great value, since all stone fruits make a considerable demand upon the available lime of the soil, and this, owing to natural causes or exhaustive cropping, may be reduced to mere traces.

In regard to soil requirements, Plum trees will succeed well on a great many kinds, but some groups appear to succeed better on certain soils than on others, the best soil depending somewhat on the climate in which the Plums are grown. In most districts where Plums succeed best, well-drained clay loams have given the most satisfactory results. Unless the soil is well drained, success in Plum culture need not be expected; and the more severe the climate in which the Plums are grown, the warmer the soil should be. Further, the texture or physical condition of the soil is nearly always more important than its mere richness in plant food. That is, the productiveness of land for Plums is not determined wholly, or perhaps not even chiefly, by the amount of fertilising elements which it contains, because plant food is of little value unless the tree can use it, and that quickly.

The soil is a vast store-house of plant food, and the first efforts of the fruit grower should

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

be to make this store available to the trees and plants. Poorly tilled orchard land not only refuses to yield up its own stores of wealth, but it will delay and even preclude the good results from plant-foods which may be added to it. Make the physical and environmental conditions right and the addition of plant-food will be felt and appreciated. Few people are aware that the season of growth of the Plum and allied fruit trees extends scarcely to mid-summer, and that they cease growing very early in the autumn. This is, no doubt, one reason why they are able to endure the severity of the hardest winter. It is also a reason why the plant-food in the soil should be in a readily available form for the trees as soon as they begin to show life and vigour in the early spring.

COMPOSITION OF THE FRUIT.

It may be of interest and practical value to quote a chemical analysis of a sample of Green Gage Plums and a sample of Damsons.

Table showing the percentage composition of the ashes of the fruit of Green Gage Plum and of the fruit of the Damson:—

	Plums per cent.	Damsons per cent.
Potash	59.21	45.98
Soda	0.54	5.66
Lime	10.04	12.65
Magnesia... ..	5.46	8.17
Iron oxide	6.04	1.19
Phosphoric acid..	12.26	13.83
Sulphuric acid ...	3.83	2.37
Silica	2.36	9.22

The data thus given shows that the Green Gage Plum is an exceedingly large consumer of potash, this fruit extracting from the soil nearly 14 per cent. in excess of the fruit of the Damson; in fact, of all our English fruits the Green Gage Plum appears to require the largest amount of potash to form its fruit, the Apricot coming next in this particular. Phosphoric acid is the next ingredient in importance, and then lime. The Damson being the greater consumer of both these elements. The difference in the amount of soda of the ashes between the Plum and the Damson is remarkable, as is also that of the element silica.

MANURIAL REQUIREMENTS.

All rational systems of manuring must include the renewal from time to time of the vegetable organic matter of the soil; Nature adds the organic matter to the soil by growing plants upon it, and then incorporating their remains with it. The same result may be best obtained by the fruit grower by the supply of farmyard manure or by turning under of green crops; this eventually is converted into humus, the importance of which as a soil constituent it is difficult to over-estimate. It not only liberates slowly and continuously its plant food, but vastly improves the soil texture, whether it be a clay or a sandy loam. It increases the soil's power for absorbing and retaining moisture, and it furnishes the best material for the development of microbe life, which, as now known, plays so important a part in increasing a soil's fertility.

Experiments now being made show that the addition of concentrated or chemical manures to heavy orchard lands does not promise very important results; but there are greater hopes from experiments in the sowing of Clover and similar leguminous crops between the rows of trees, and in the use of stable or farmyard manure. An instance is known of an orchard so treated growing excellent crops of Plums (the season being favourable) for twenty consecutive years.—J. J. WILLIS, Harpenden.

Question Night.

A brief reminder from a correspondent at Birmingham has been the cause of our again bringing forward the suggestion that gardeners' mutual improvement and debating societies should more and more adopt the question night, not as stop-gaps in the absence of an essay as at present, but as the invariable rule. To our own minds there is more to be said for the question night method of procedure at these meetings than there is for the system of reading essays and discussing

them afterwards. The interest is spread over a larger number of the audience, and under the leadership of an adroit chairman, discussions and questionings need not be allowed to fall to a trio or quartette of speakers; everyone can ask for or impart knowledge, and if perfectly satisfactory information be not forthcoming, the members are left with something to think over and investigate through books or in their practice.

The note we refer to as coming from Birmingham tells us that at the latest meeting of the gardeners' society there, Mr. Lohrman, one of the members, presented a "question box" (a receptacle for questions by members requiring information of horticultural interest). Messrs. Lohrman mentioned that this system was much favoured in Germany. "The box was constructed of polished American mahogany, enriched with polished brass plates, one engraved with the *à propos* motto, 'Mutual communication giveth knowledge'; and the other, 'Presented to the Birmingham and Midland Gardeners' Mutual Improvement Association by Messrs. Lohrman, February 1, 1904.'"

American Florists' and Gardeners' Clubs.

In nearly every extensive city of the United States the florists and gardeners have what are known as florists' clubs, one in each city. The club meets once a month and discusses timely horticultural topics. These clubs, when properly handled, do much good; they bring the members into close acquaintance, and all become familiar with the newest and best varieties of plants, and the best paying and most progressive methods of cultivation and construction, &c. These clubs are not beneficiary societies in any way. As I have for several years been president of "The Pittsburgh and Allegheny Florists' and Gardeners' Club" (writes Mr. Wm. Falconer, in the "Gardening World"), I will tell you something about what we do. Pittsburgh is a city of over 360,000 people; Allegheny is an adjoining city of 130,000 inhabitants; and within a radius of twenty miles there are several other cities, towns and boroughs, in all amounting to 750,000 or thereabouts.

The one club suffices for all. We hire a small hall one night a month. Our annual dues are 2 dollars a year, just enough to pay our expenses. We meet at night from 8 to 10, but it is often 11 before we get through, and our meetings are well attended, bright and interesting. Routine business is brief, and long discussions are disallowed. A special subject, as the Rose, Carnation, house decorations or the like, is taken up for consideration and discussion at each meeting; it is announced at the previous meeting, and all come prepared to handle it, and a special exhibition of the subject is made. For instance, if it be Roses, the several growers of Roses send in a few of their choicest flowers, and a letter of request is sent out to the uttermost ends of the country to the raisers of new varieties or growers of special kinds for exhibits of their Roses and a few notes about them. This brings together a most instructive display. No papers are prepared or read. A busy gardener or florist has no time to prepare a paper; besides, the very thought of having to prepare and read a paper would scare some of the very best growers from the club. But the most diffident cultivator will answer questions as fast as you ply them.

The president takes the chair, and gets through the routine business as quickly as possible. The subject of the evening is to be Roses. The standard sorts are taken first, and one variety at a time is placed on his table. These, American Beauties, were grown by John Smith. John is asked the condition of his crop, when he planted them, how far apart, how deep the soil, the composition of his soil, about temperature, ventilation, training or tying, second crop, mildew, red spider, fertilisers, &c., and John will answer each question pointedly and promptly. Then the chairman will ask other growers pointed questions as regards their experience and practice, and there will be an explanation of differences in treatment, or marketing, or cropping. There is no hesitation or dullness; sometimes three or four men try to speak at once. The Beauties are passed and removed, and on to the table come Meteors, and after them Brides, Testouts, and so on, each one in its turn. Then come the new varieties, and the way they are torn to pieces sometimes makes one sorry they ever appeared. But it is a critical audience and an honest one. Dahlias were our subject in October. We had a large exhibition of flowers, and the meeting was packed to the door. What became of the blossoms? They were divided among the members, every man carrying home an armful, or a huge hand bunch. Our last meeting (November) discussed Chrysanthemums. One hundred and sixty-three distinct sorts came before us, some from 800 miles away; and they were classified and handled in the same way. All of our local daily newspapers report these meetings, and they also are noted in all of our horticultural or florist papers. Once a year, in the summer-time, we have an outdoor picnic.



Cypripedium × Morteni.

This decidedly distinct and interesting hybrid was shown at the meeting of the Royal Horticultural Society on January 26, by Mr. W. Appleton, Weston-super-Mare, when it received an award of merit. The parents are *C. Chamberlainianum* and *C. Leeannum*. The lip is rosy purple, the narrow petals having a sinuous, irregular edge, and marked a chocolate colour, the dorsal sepal dark at the base and white at the tip.

Cultural Notes: Dendrobiums.

The Dendrobiums are very interesting now, and for the next three months they will be greatly in evidence in the flowering house. There are not many orchids that give so good a return for the trouble spent on their culture. Their one fault is a disposition to give way after they have been a little while in cultivation, plants that for a year or two after being imported grow and flower remarkably well, going wrong all of a sudden and without any apparent cause. Others again in the same house will go on and improve year by year, making fine specimens.

From the success I have had with "miffy" Dendrobiums in Pine, Melon, and other houses where some at least of the heat is derived from fermenting material inside, I am positive that an ammoniated atmosphere is of the greatest benefit to them; and although one can hardly introduce beds of leaves or manure into the orchid house, yet much may be done by damping with liquid manure or soot water, sprinkling a little soot and lime about where drip will reach it and cause a constant supply of ammonia to be given off, or by placing sulphate of ammonia in the heating troughs. The result will soon be seen in the increased health of the plants, the leaves taking on a deeper green.

The lack of sun last autumn will be against freedom of flowering with the long-bulbed section of the genus, such as *D. Pissardi*, *D. Devonianum*, and others, for unless these get a thorough ripening and a good rest afterwards only a few of the stronger nodes will flower. There is not the same fear now of the flower nodes producing growths that there was earlier in the season, and for plants that are showing any signs of swelling a rather sudden change from the cool house to a warm one may result in more satisfactory flowering than a gradual rise.

It will also have the effect of starting them quickly into growth, giving them more time to finish while there is yet sun to ripen them. At the roots they will still be comparatively quiet, so no water must be given unless the stems show signs of shrivelling, when a thorough soaking in a pail or tub is essential. They must then be allowed to get thoroughly dry again before repeating the dose. Nothing is more likely to cause damping and loss to the young leads than constant light waterings, which do no good to the majority of the roots, but they keep out the air from the compost by soddening the surface and making it unfit for the new tiers of roots to run in when they are formed.—H. R. R.

The Vanilla.

Vanilla is an orchid which, in the West Indies, creeps over trees and walls like Ivy. A substance called "salep," somewhat resembling arrowroot or sago, is, according to the "Family Doctor," obtained from the tubers of a variety that grows in Turkey and Persia, where it is highly esteemed. The genus *Vanilla* furnishes the only edible products of the Orchidaceæ, the pods of *V. planifolia* containing in their centre the substance which is extracted and used for flavouring in confectionery. The *Vanilla* is often grown in hothouses, and very successfully so at Sion House garden.

Ada aurantiaca.

This orchid may be grown in any cool, moist house. The bright orange-coloured blossoms are greatly admired during this month, and contrast strikingly with the other occupants in the cool house. It is a colour infrequently met with amongst orchids, which fact increases its value, and makes it worthy of a place in every collection. When well grown it amply rewards attention bestowed upon it by a wealth of its telling flowers. The cultural details are simple in character—one to be observed is that it resents annual disturbance, and for this reason the potting should be done with thoroughness, clean pots, equally clean drainage, and enough space being allowed for root development to last the plants at least two seasons. When well established, water freely all the year round, and place in a position where a moist atmosphere can be maintained. *A. aurantiaca* is the only species well known and worthy of merit.—F. W. Gooch.

Carnation:

MRS. LEOPOLD DE ROTHSCHILD, SYN. MDLLE. TH. FRANCO.

As a thoroughly good and reliable winter blooming *Carnation* the above named variety still maintains a high position, as it commences to bloom in the early winter months and continues to do so profusely until March. To obtain good plants for flowering next winter cuttings should be put in now.

Many people experience a difficulty in striking the cuttings, but if the following plan is adopted this trouble will be easily overcome:—Crock the required number of small 60-sized pots as for ordinary cuttings, and fill with a mixture of finely sifted soil composed of equal proportions of loam, leaves, and silver sand, and over each potful give a sprinkling of sand. Prepare the cuttings from young side growths in the usual way and insert four or five cuttings round the edge of each pot. Should the soil be rather dry a soaking of water will be required after the cuttings are put in, but if the soil is nice and moist this will not be needed.

The pots should then be plunged in moss in propagating boxes and placed in a light position on the hot water pipes in a house the temperature of which does not fall below 58deg F. If this is not convenient they should be plunged in some fermenting material instead. The boxes should be kept close and the atmosphere rather moist, and in about eight or ten days a little air can be given, which may be increased as the cuttings root.

So soon as sufficiently rooted to require potting they should



Cypripedium × Morteni.

be transferred to small 60-sized pots, in a compost made up of two parts loam, one of leaves, and one of sharp road grit, and placed in a light and airy position in a temperature of about 45deg F.; and when well established they may be stopped once to induce them to break. Before they get pot-bound they will need to be potted into 48-sized pots, this time using a compost similar to the one previously stated, with the addition of a little finely broken charcoal.

The time of the year will now allow of them to be removed to a bed of moist ashes in a cold frame, where they should be kept close for a day or two until well growing again, after which air can be freely admitted on suitable occasions; and during the summer months the lights may with advantage be removed entirely, except to ward off heavy rains.

If good growth has been made through the summer they should be potted some time during August into their flowering pots, which should be of 7in in diameter. The compost for this potting

should consist of two parts good fibry loam, one of leaves, one of finely broken dried cowdung, and a sprinkling of bonemeal and sand. They may still occupy their recent positions in the frame until they are brought in for flowering, which should be in a moderately cool and light house. Overwatering is a great evil to guard against in the cultivation of this species of plants, especially through the winter months.—E. B., South Berks.

Begonia socotrana.

In response to the editor's invitation I am sending a few details of the culture we at Ashby St. Ledgers give to this beautiful winter-flowering Begonia. Many of our plants measure from 24in to 30in through, and the same in height, with leaves 10in across. I enclose a sample of foliage leaves and a cyme of flowers for the editor's inspection, which will, I think, show that although not generally seen in quite a satisfactory condition, this variety is well worth a prominent place amongst winter-flowering kinds.

The treatment we give is this: When flowering is over in March they are allowed to go to rest naturally by reducing the temperature to 50deg to 55deg at night and gradually reducing the water at the roots as the foliage shows signs of ripening, until they are brought to a dry and dormant state, which will be about the end of April or early in May. They may then be stored away in the store room or other suitable place. About July 1 they should be brought from the resting quarters and placed in a house or pit of about 60deg night, exposed to the full sun; after a few days give a thorough watering, but afterwards water very sparingly.

In about three weeks they will be showing some signs of activity, and should be shaken out of the old soil and potted up, if from a 32-size (5in) pot into a 54-size, potting moderately firm in a friable mixture of equal parts of sandy loam, peat, and leaf soil, $\frac{1}{4}$ part of wood ashes, a little lime rubble, and some powdered brick or crocks, with a liberal amount of sand. Place them on a shelf in a warm house in a light position, but shade from the direct sun; spray lightly two or three times a day, and water with great care, for, having no active roots, they must be kept on the dry side, but not allowed to become dust-dry.

In two or three weeks they will begin to throw up leaves, and should then be taken from the shelf and given a light position in a warm house, where they may still be shaded from the sun. Dew them lightly overhead twice a day, and keep an abundance of moisture amongst the plants, and on the stage. When they are nicely rooted through these pots, care should be taken that they have no check by becoming pot-bound, but pot them at once into large 32-size pots; the pots being clean and well drained. The soil consists of equal parts of lumpy, sandy loam, peat, and good flaky leaf soil, $\frac{1}{3}$ wood ashes, $\frac{1}{2}$ cow manure, a little lime rubble, some powdered brick or crocks, and a liberal amount of sand.

Pot firmly, but do not use a rammer, and using the compost as lumpy as possible. Place them in a similar position as before, and keep the house and stage well damped; dew overhead, but "hot water them" for a few days, care having been taken that no plant was potted dry. Be very careful in the watering, and they will soon take hold of the new soil and "romp along," making fine plants.

As October comes in they should be very gradually hardened to the sun, so as to put more substance in the growth, and produce better results in the dull winter days than the otherwise too soft growth would, and as the dull weather comes on a drier atmosphere should be maintained. As they become full of roots they may be fed with soot, or wood-ash water, or a little Clay's for a change, a change of food being beneficial.

By the middle of December they should begin to open their flowers, which will give a grand display until March, when they should be allowed to go to rest as before. I think the most important points are: Giving a proper rest, using the potting soil as lumpy as possible, keeping a warm, moist, and genial atmosphere during the growing season, and above all, a very careful use of the waterpot.—E. F.

[Our correspondent (whom we thank for so kindly responding to our invitation) sent some beautifully healthy inflorescences, and large, peltate, stout, round leaves, which were proof of the acceptable treatment accorded to the plants.—Ed.]

FLOWERS FROM FRANCE.—Enormous consignments of flowers continue to be landed daily at Folkestone harbour from the South of France for the London market.

CHRYSANTHEMUM RUST.—A Malvern correspondent says he has a "safe, simple, and effective method for keeping Chrysanthemums free from this dreaded pest." Doubtless many of our readers would wish him to confide his knowledge to us, with permission to print it. He would be a national benefactor.

Book Notices.

Culture of Dahlias.*

Mr. Tulloch, the secretary, observes that "Owing to the rapid revival of interest in the Dahlia during recent years, due to the development of the 'Cactus' flowered type, the N.D.S., as the leading authority on all Dahlia matters, has prepared and issued this booklet with the object of affording assistance to growers, both in the matter of culture and choice of varieties. The comparative ease in obtaining the best results from the 'Cactus' Dahlia as compared with the older 'show' and 'fancy' types brings it within the reach of all; but in spite of this no work on its culture has yet been issued" (?).

From the fact that a committee of experienced cultivators of this charming flower are responsible for the hints herein given, it is unnecessary for us to say that the book is therefore reliable and thorough. Mr. Mawley, president of the society, writes an introduction; then follows the bibliography that has appeared in reference to Dahlias, and after that chapters on soil, propagation, raising seedlings, enemies and how to deal with them, culture of the Cactus Dahlia for exhibition, exhibiting Cactus Dahlias; and there are also chapters on the decorative aspects of the flower. The show and fancy, the pompon, and the single Dahlias are each treated of by experts. The lists of varieties extend from page 61 to page 85, and the dates of their introduction are given in most cases, some of them going back to 1870. Colour and height are also described. The work is well arranged, and must be found useful.

Culture of the Chrysanthemum.†

Books on the culture of Chrysanthemums are not numerous; in fact, we think there are but two now in the field that can be recommended, and this is one. Mr. Wells has made a great name for himself as a cultivator and exhibitor of this indispensable late summer, autumn, and winter flowering plant, and his fame has gone to the United States, where a round dozen of his introductions are amongst the most valued of those grown there. He mentions his achievements in this connection in the book before us, and furnishes illustrations of some stands at New York show. The book throughout is brightly illustrated, and is clearly and well written. What more can we say? Insect pests are better shown than in any previous edition, and Mr. Wells furnishes a remedy for the "rust" which most growers now dread. It is published from the Earlswood Nurseries.

Flora of Derbyshire.‡

Local floras can hardly be said to form a very successful branch of botanical literature. Being works for reference rather than reading, their sale is generally limited, and the price high. Sometimes they have been prepared by persons who were unable to make sufficient researches. The "Flora of Derbyshire," for which the worthy Vicar of Shirley, Derbyshire, is mainly responsible, merits an honourable place amongst works of this nature, and it is a great advance upon publications in 1888 and 1889 of a similar design. He tells us that it represents the labour of about ten years, and he has had the aid of a company of able assistants.

Derbyshire, indeed, is a county of much interest to botanists and to others. It has its Chatsworth, its Haddon and Hardwick Halls, and in Georgian times people sought out the gardens of Overton House, near Derby, to see an immense Gooseberry, 6ft high, and trained over a wall for 50ft. Also in the grounds was a cluster of Birehes, which through a long period had been tapped yearly for their sap, which was made into British wine. The heart-cheering hills and the delightful dales of Derbyshire are a joy to the tourist, if he occasionally gets more rain than is agreeable.

This book has a short but valuable chapter upon the rainfall of the county, which is divided into two regions, the higher district getting much more than the lower, having sometimes even 50in per annum. At all stations, however, spring is usually a dry season, the chief rains being in October. This lack of early moisture, one thing not much affecting perennials, must be unfavourable to those wild flowers which came up annually. The chapter upon climate and flowering seasons, that also upon soils and strata, have special value; these have great influence on the flora of a district.

The county presents a fairly good list, but some of its varieties have vanished owing to the changes of time or the re-

* The Official Catalogue and Culture Guide of the National Dahlia Society, 1904. Prepared by a Committee of the Society. Edited by Mr. J. F. Hudson, M.A. Price to non-members, 2s. post free.

† Culture of the Chrysanthemum for exhibition, decoration, cut flowers, and market: woodcuts of the different breaks, &c. Third and enlarged edition. By W. Wells. 1s. 6d.

‡ "Flora of Derbyshire—Flowering Plants, Higher Cryptogams, Mosses and Hepaticae, Characeae." By William Richardson Linton, Vicar of Shirley, Derbyshire. London: Bemrose and Sons, Ltd., 1903.

searches of dealers. It has lost such species as the Herb Paris, the Mezereum, the fragrant Orchis, and the Osmund Royal Fern. Some orders are well represented, the Rosaceæ is an instance, and the author enumerates no fewer than sixty species of the genus *Rubus*. Possibly some of these may be varieties merely. The book is embellished on the outside with a figure of *R. durescens*, a rather local species, first observed in 1887; and two excellent maps will be helpful to the student.

"One and All" Gardening, 1904.

This popular annual reaches its ninth issue this year. A first edition of 100,000 has been prepared to meet the growing demand. There are 200 profusely illustrated pages, yet the price is continued at twopence. Amongst the notable articles are: "The Garden of Consolation," by the editor (Edward Owen Greening), "A Policeman's Roof Garden," "Board School Children's Flowers," "Floral Evolution," "Culture of Cabbages, Cauliflowers, and Broccoli," "Onions," "Cucumbers," "Shakespeare's Plants and Shakespeare Weather Lore," by Hon. H. A. Stanhope, and numerous illustrated articles by Mr. D. S. Fish, Edinburgh. It is "a popular annual for amateurs, allotment holders, and working gardeners," and is published at 92, Long Acre, London, W.C.

History of the Potato.

(Continued from page 70.)

One reason, certainly, that the plant remained so long in disrepute, was the defective mode of its culture. This, and ignorance of the proper mode of cooking the tubers, would make them certainly anything but a tempting article of food. The following anecdote illustrates this:—"A person who had been invited to taste the first Potato planted in the county of Forfar, N.B., about the year 1730, related that the roots had been merely heated, and that they adhered to the teeth like glue, while their flavour was far from agreeable. The food was thus about to be condemned, when the accidental arrival of a gentleman, who had tasted a Potato in Lancashire, caused the rejected roots to be remanded back to the hot turf ashes till they became as dainty as they had before been nauseous."

According to the old statistical account of Scotland, Potatoes were first cultivated in the fields there in the year 1739, in the county of Stirling; and Dr. Walker assures us that they were not known in the Highlands and Isles till 1743. It is stated in the General Report of Scotland (vol. ii., p. 3), as a well ascertained fact, that "in the years 1725-6 the few Potato plants then existing in gardens about Edinburgh were left in the same spot of ground from year to year, as recommended by Evelyn; a few tubers were perhaps removed for use in the autumn, and the parent plants well covered with litter, to save them from the winter's frost. Notwithstanding the success that, after this period, attended the culture of the Potato among the cottagers, its progress among the higher classes in Scotland was retarded by the opinions of different writers on agricultural subjects, already mentioned; and also, what is not a little singular, a mistaken zeal in religious matters made some of the Scots folks hostile to the innovation. 'Potatoes,' said they, 'are not mentioned in the Bible!' and this was deemed quite a sufficient reason for rejecting them. Famine at last gave the great impulse to the cultivation of this root, and during the latter part of the eighteenth century its excellent qualities became generally understood." ("Quart. Journ. of Agric.")

The Netherlands received the Potato from England, and from thence it found its way into different parts of Germany. It was very late before it came into general cultivation in Sweden and Denmark, and even Saxony, but in all these countries it is universally used at present. In Switzerland, Potatoes seem to have been introduced about the year 1720; they now form a principal article of food there. Poland is, perhaps as remarkable as Ireland for their extensive cultivation.

It is only within the last eighty years that any particular attention has been paid in France to the cultivation of Potatoes. They were long regarded as an unwholesome plant, and only fit to be eaten by cattle and the most wretched of human beings.

In 1698 Dr. Lister remarks that the Potato had then become a great relief to the people of England, though it was rarely to be met with in the French markets. ("Travels, 149.") It continued in France to be esteemed as food fit only for the lowest classes until the year 1749, and then came somewhat into repute, but was again disused by the aristocracy until MM. Faignet and Parmentier caused bread and biscuit to be made of its meal.

It is probable that the French had only cultivated the inferior sorts, and did not know that better kinds could be procured. Parmentier, so distinguished by his zeal for chemistry, was the first who made any markedly successful exertion in behalf of this decried and unpopular plant. He

thought that the best plan to introduce it into general use was to make it popular with the higher orders. For that purpose, in 1785, he presented Louis XVI. with a nosegay made with flowers of the Potato, and the Sovereign graciously received the emblem of a plant the most likely of any to guarantee his subjects against the horrors of famine. This ingenious mode of bringing a plant, which had hitherto been so much despised, into fashion was eminently successful. The courtiers, always ready to flatter the taste and wishes of their monarch, hastened to cultivate an article honoured with his regard, and thus France, in a great measure, owes the more extensive culture of Potatoes to courtly flattery. ("Mr. McAdams. Quart. Journ. of Agric.")

It was more early esteemed in Germany, for Clusius says, in 1601, it was sufficiently common in their gardens; and in 1780 Dr. Martyn states that he saw it extensively cultivated in Swabia.

So slow has been the progress of this root in Norway that Van Buch observes it was scarcely known at Bergen in 1762, a circumstance the more remarkable, as a century and a half has elapsed since its introduction into Iceland, the climate of which is less favourable than that of Norway. In about twenty years the Potato found its way into Nordland, and not long afterwards was introduced into Finmark, where it has now become pretty general. The Potatoes of Alten, though seldom exceeding the size of a small egg, form, nevertheless, a valuable addition to the resources of the inhabitants of Lapland. Their produce usually averages about thirty-fold, and in some instances it has reached to forty-four. The price is usually from 3s. 6d. to 5s. the barrel, or sack, of four English bushels. The Potatoes grown in Finmark are remarkably sweet to the taste, of a waxy nature, and in colour of a deepish yellow. ("C. Brookes's Trav. in Lapland, 203.")

In other quarters of the globe the Potato is extensively cultivated, especially in North America, and in some parts of its southern latitudes. It has spread throughout the Islands of the South Seas, and in Australia and New Zealand its judicious culture seems to have preserved it from the disease devastating it in all other countries. At the Cape of Good Hope and St. Helena I have eaten them in as great perfection as in England, and found them scarcely inferior in the still more torrid latitude of Bengal. At the horticultural show in Calcutta during 1872, I saw Potatoes exhibited which would not have shamed the Potato-growers of Lancashire, if mistaken for their produce. These were grown in the immediate vicinity of the city, but in the hills of Chirra Poongie, though not far distant, the Potatoes are grown still finer. They were an object of cultivation there during the Governor-Generalship of Warren Hastings (1772-1785), and, alluding to that period, a recent writer observes: "Threescore years ago a basket of Potatoes weighing about a dozen pounds, was occasionally sent, as opportunity offered, by Warren Hastings to the Governor of Bombay, and was considered a very acceptable present. On reception, the members of the council were invited to dine with the Governor to partake of the rare vegetable. Somehow or other, the Potato was introduced into Guzerat, and, in process of time, Bombay became well supplied with it, so well that the market had ever an abundance at a low price, and very good. This may imply a lapse of twenty years, and then, when the Bengal and Madras armies rendezvoused at Bombay, on their way to Egypt, every transport was supplied with as many Potatoes as the captains would take."

The General then in command of the army of Egypt, who superintended equipments, although he did not go with it (Sir Arthur Wellesley), was much struck with the resources of Bombay, and, among other things, with this unbounded supply of Potatoes; and it struck him that they might be advantageously grown in Mysore. He condescended to confer with the writer of this, who happened to know something of the soil and climate of Mysore; and the result was sending, at Sir Arthur's expense, 500 baskets of Potatoes, each weighing 14lb, to the President of Mysore, with instructions as to the distribution of them for seed, the cultivation, &c., and now Potatoes are as good, as plentiful, and as cheap in Mysore as in Bombay, or in any other place. ("Gard. Chron., 1842, 621.")

Potatoes are largely grown also in the Bermudas and other islands of the West Indies, and for excellence of quality they equal any known in Europe.—G. W. J.

(To be continued.)

ISAAC MATTHEWS AND SONS (NURSERYMEN).—This company has been registered with a capital of £7,500, in £1 shares, to adopt an agreement with I. Matthews, H. A. Matthews, and G. Hibbert for the acquisition of the business of nurserymen, florists, and seed merchants carried on by them at Milton, Staffordshire, as "Isaac Matthews and Son," and to carry on the business of nurserymen, landscape and market gardeners, fruit, plant, and flower growers and salesmen, fruit and vegetable preservers, bulb growers, seedsmen, root and Potato merchants, &c.

Grading and Packing Fruit and Vegetables.

(Concluded from page 47.)

With green vegetables, such as Cabbages, Savoy, Kale, and Brussels Sprouts, the principal point is to see that each sample is uniform and in the best condition, which is largely a question of care in gathering. For ordinary markets the two first-named must be large and with solid hearts; for special sale and for sending direct to consumers a smaller size, but possessing all the other essential characters, is often preferable. Brussels Sprouts should always be sorted into two grades, all the firmest and most compact into one, and the looser, rougher sprouts into another; the increased price of the first will pay for this in the majority of cases. To Cauliflowers and Broccoli similar remarks apply; the most even and whitest heads constitute the first grade, the rougher and discoloured the second. As with Cabbages, large heads are required in general markets, but for the best sales moderate-sized, perfect samples are the most satisfactory.

Other crops pay for attention in the same way. Rhubarb can be classed in two grades, the longest, straightest, and best coloured forming No. 1 bundles. Celery may be divided into two or three grades, the heaviest and most solid in bundles for salad, the others loose for soups. Asparagus, too, should be placed in two or three grades, according to the length, substance, and blanching; the smallest (sprue) for soups; all the best in bundles of 25, 50, or 100, the last in larger numbers.



Amaryllis Belladonna ($\frac{1}{4}$ nat. size)

Seakale can also be sorted, the best grown and whitest in bundles set upright in baskets.

Tomatoes demand the greatest care in sorting; two, three, and even four grades may be formed. The best in boxes or shallow baskets. The most even and brightest coloured fruits take the lead; there is a special demand for the largest handsome fruits in some markets, but the principal general sale is for good, even-shaped, moderate-sized, uniform samples. Cucumbers are graded into two or three sizes; and Vegetable Marrows are also sorted, but in some places large specimens of the latter are most in demand, while in others a medium size is chiefly required.

Salading, like Lettuces and Endive, can occasionally be separated into two grades, according to the solidity and blanching of their hearts, but as a rule a uniform sample of one value is preferable, to be regulated by the gathering.

The essential general rules in grading vegetables of all kinds are the following:—(1) Exclude all immature, overgrown, coarse, or defective specimens from the leading grades. (2) Make each grade as uniform as possible. (3) Let freshness and fitness for use be the characteristics of all vegetables when consigned to market or consumers. To aid in all this only the best varieties obtainable should be grown, and growers should watch closely for every real improvement on old sorts.

Packing for Sale.

Wherever fruits or vegetables have to be transferred a distance by road or rail, the best culture and most careful grading may lose all their value through neglectful packing. That many of the defects in market consignments are either due to this, or materially increased thereby, the majority of salesmen can confirm, and the complaints on this score are as frequent as those regarding inattention to grading. In dealing with fruits the essentials for success are as follows:—(1) Use only perfectly sound fruits. (2) Pack firmly, without crushing. (3) Use the best elastic odourless materials as packing. (4) Place all choice and ripe fruits in small quantities and shallow packages.

In the home trade baskets are much more extensively used than boxes, and the most common are round baskets without lids, of the bushel, half-bushel, or half-sieve types. They are strong and durable, but are objectionable for all the best fruits, as, even with the most careful packing, the top layers are liable to be bruised, and under careless methods they are certain to be damaged. When Apples, Pears, Plums, Cherries, or Gooseberries are sent in such baskets a covering of paper, with straw or other material, is placed on the top and secured by cross pieces of Willow or Hazel, the points of which are forced through the sides of the basket below the rim. Flat baskets with lids are preferable but expensive, and the difficulty with all these is that they must be charged for or returned. In extensive dealings with market salesmen baskets are supplied at very little cost to the producer, but where it is desired to promote more direct communication between the grower and retailer or consumer some other method is preferable, or the producer must provide his own baskets. It would be helpful in many districts if a local industry could be developed in cheap basket making; there are few places where suitable Willows could not be grown, and the basket-making might be performed in the winter evenings. For useful information regarding Willows and Osiers suitable for the purpose named see Board of Agriculture Leaflet No. 36.

Much could be said in favour of boxes for fruits, and, where only small sizes are employed, they may be purchased, or made so cheaply that they can be included in the price of the fruit, and thus all the trouble of returning or collecting empties is avoided. Their more general use under the right conditions would assist producers to avoid overstocking the markets in seasons of heavy crops, and, by facilitating direct communication with the consumers, secure better prices. In a small way, boxes can be made at home at a cost of $1\frac{1}{2}$ d. to 1s. each; on a larger scale, with the use of machinery, they may be turned out at about 8s. to 50s. per 100, according to the size, and boxes costing 1d. to 6d. can always be given with the best grade of fruit, usually even with profit. Many of the leading railway companies have recognised this fact, and now supply boxes of various sizes at 1s. 6d. to 5s. per dozen, while several manufacturers also supply to large orders at very reasonable prices.

Various materials are available for packing purposes; but much the best are the several grades of wood wool now prepared, the coarsest being suitable for large packages and heavy fruits, and the finest softest samples for the choicest and ripe fruits. But wherever it is to be in contact even with Apples and Pears only the softest make should be employed; the rougher samples can be used for the bottom, or filling up at the top. All choice and delicate fruits should be encircled with bands of folded soft tissue paper, having a glazed surface, which must be in contact with the fruit. This is also required to place over the top layers, but a stronger paper is used for unripe Apples or Pears.

In the actual work of packing, an even layer of wood wool is placed at the bottom of the box or basket, this being covered with a sheet of paper, and upon it the fruits to be disposed of are placed firmly. The best Plums, Pears, or dessert Apples should never be in more than two layers, and in the smallest boxes holding one layer they travel in the finest condition. If only one layer of fruits is made, the packing material at the bottom, and that at the top, besides the folded paper band round each fruit, will be all that is essential; but if there are two layers they must be separated by two sheets of paper, and

sufficient fine wood wool evenly spread to prevent injury to the lower fruits, and form a firm bed for the upper ones to rest upon. From one dozen to four dozens of the best dessert Apples, Pears, or Plums may be so packed in one box with safety for a long journey. Peaches, Nectarines, and Apricots must always be in single layers, and demand the utmost care.

Strawberries can be packed in from 3lb to 6lb of selected fruit, but the first-named quantity is the best for the finest fruit, and the smallest of the railway boxes just holds that amount conveniently, allowing for a little packing material at the top and bottom. The same size box will hold 4lb of best Cherries, 3lb of Raspberries without their stalks, 3lb Red Currants (closely packed), or 4lb of Black Currants; but the last two may be packed in 6lb to 12lb lots if not too ripe—the smaller quantities are, however, preferable and safer. The finest early Strawberries should be packed in 1lb punnets, which may be either deep or shallow, round-plaited clip punnets, or square ones (with or without handles). The round punnets are best packed in trays with lids, and those generally employed will take six punnets. They are only used for the earliest and choicest fruits, when prices are good. Crates can be employed to hold several such trays, those large enough for six being a convenient size and weight.

The square punnets are packed more closely together on sliding shelves, or in trays like the others in crates. Grapes are packed in shallow or handle baskets, the points of the bunches towards the centre and the stalks secured to the sides or rims, the top of the basket being covered with stout paper tied round the rim, or some handle-baskets are fitted with lids. The sides and base of the baskets are sometimes padded, but they are then always covered with a soft, glazed paper. The great point is to avoid rubbing the surfaces of the berries and spoiling the "bloom."

In every case, besides ensuring the security of the finest fruit, it should be displayed to the best advantage, and if the grade is uniform, as advised, this can be done quite honestly by the aid of a little coloured or white tissue paper to fold over the sides when the box is opened, and by arranging the fruits with the coloured side uppermost.

The question of branding or labelling must be considered, for where good fruit only is being dealt with, the use of the words "Seconds" and "Thirds" is apt to give rise to a misconception that is unfairly against the seller's interest. For the finest samples "Extra," "Select," or "Special" may be employed. Some mark the next grade A1, and the next No. 1, or if the letter X is employed, three would be used for the first grade, two for the second, and one for the third. Another method is to term the best Selected No. 1, and the other grades Selected No. 2 and Selected No. 3. Something of this kind is needed to indicate that the lower qualities are not refuse but properly graded fruits. A grower should adopt a uniform system, and adhere to it, so that his brand may become known and have a market value, and every package ought to have the name of the variety and quality boldly printed on the label.

Growers who intend to make a substantial business, and who deal honestly in the best produce, should have their own names on the packages. This is sometimes objected to in a market, but if a grower cannot make his business through the ordinary channels he must try fresh ones. It is best to endeavour to supply the shopkeepers, or to develop a trade with private customers, and send direct to them. The reduced rates at owner's risk on the railways, and the parcels post, afford ample means for enterprising men to work up a business in small packages of choice fruits if they take the trouble to do so, either by advertising, by circulars, or by trade letters.

In packing vegetables most of the general advice already given should be serviceable; but these are disposed of in larger quantities and therefore require a different class of packages. Bags of various kinds and sizes, with large light open baskets or crates, are more extensively employed than boxes. The majority of roots are sent in bags, but the best samples of Turnips, Carrots, &c., that are bunched are sent in crates, while Radishes and small roots are sent in baskets. Green vegetables, like Cabbages, are best in crates, as also are Broccoli and Cauliflowers, but the earliest and best of the last-named are often packed in flat baskets or hampers and pay for every care. The best samples of salading, such as Lettuces, are usually packed in hampers, the rougher grade in crates. Peas and Beans are packed in baskets, bushels, or half-sieves, but, as previously noted, Peas when shelled are forwarded in small boxes containing about three quarts each. Half-sieves are also used for Brussels Sprouts, pickling Onions, and other small vegetables. The earliest Rhubarb is consigned in hampers; the latter often goes to market in bundles loaded direct into the vans, or packed in crates, as also is Celery. For all early and high quality vegetables shallow baskets or boxes are useful. Cucumbers, Tomatoes, Mushrooms, and many others can be conveniently sent in this way, and where periodical consignments of general vegetables are sent to private customers this is the best method. It is necessary to pack firmly, as with fruits, and where green or perishable vegetables have to travel

a long distance it is desirable to gather them as shortly before packing as possible, preferably in the early morning when quite fresh, but not when drenched with rain. They should not be allowed to remain exposed to sun or wind for some hours before they are sent off, as is sometimes the case, to the obvious disadvantage of the seller. Defective or decaying samples should on no account be admitted into the packages: the uniformity so strongly recommended as regards fruits should be maintained, and it will be found that the reputation gained is a satisfactory reward for the extra care.

The Board of Agriculture and Fisheries would be glad if recipients of this leaflet would make it known to others interested in the subject. Copies may be obtained free of charge and post free on application to the Secretary, Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W. Letters of application so addressed need not be stamped.

Plant Notes.

Begonias of the tuberous section, both double and single now play such a prominent part in the decoration of the greenhouse, as well as the flower-beds, that early steps should be taken to ensure a full stock of strong plants annually. The strains from the best seedsmen nowadays are of so good a quality that it is really not necessary for ordinary growth to keep a named collection. Seed sown now in pans of sandy soil placed under sheets of glass, or in a propagating case in a temperature of not less than 60deg, will quickly germinate and form nice plants if the after treatment is correct.

Where so many persons fail to ensure a regular batch of plants from each sowing is the neglect in maintaining the soil in a sufficiently moist state. Directly the plants are seen above the soil remove the glass covering from the seed-pans, giving the tiny plants light and air, and thus from the start induce them to grow stocky. Great care is necessary in supplying them with water—too much will induce them to rot, while too little checks freedom of growth. Directly they are large enough to handle, prick them off into other pans or thickly in pots, keeping them in the same temperature, and as near to the glass as possible.—E. M.

Amaryllis Belladonna.

The best flowered form of this beautiful bulbous plant is the Kew variety, whose deeply flushed rosy perianth is such as everybody admires. The Kew plants are cultivated by the side walls of various conservatories, quite in the open air, the soil being a rich, well-drained, sandy loam. The scapes appear about August and September. The flowers are more numerous and the scape is twice as long as that found in the type. It is said to be the result of crossing *A. Belladonna* with *Brunsvigia Josephinae*. The *Belladonna Lily* and its varieties are well worth some care, and a sheltered, warmish nook in any open air border might very profitably be devoted to them. Plant 9in deep in autumn or spring.

Kalosanthes coccinea.

Known also as *Crassula coccinea* and *Rochea coccinea*, this beautiful plant, is largely cultivated by marketmen, and dwarf plants in 5-in pots, may frequently be seen being hawked about in suburban streets. The plants flower the second season from the cutting, these, by the way, being taken from upper parts of the growths. They root best if exposed for a couple of days to the sun prior to inserting in the pots. A light fibrous, loamy compost kept well open is what they like; and the watering must be carefully performed. Cut the plants back after flowering, and grow on in a cool greenhouse.

Reinwardtia trigyna.

Although the accommodation for winter flowering plants at the Edinburgh Royal Botanic Gardens is not very extensive, an effort seems always made to make the most of it by growing and showing flowers to render the centre house of the range attractive. Among the plants in bloom recently was a nice group of *Reinwardtia trigyna*, which reminded one of the comparatively few private gardens in which it is grown. This is, to say the least of it, unfortunate, as a plant or two would be very ornamental in winter, a time when the clear yellow flowers are always acceptable. It has the merit of being amenable to being cut back when it becomes overgrown, although it must be admitted that these cut back plants are not so good as younger ones. The latter are usually grown from cuttings, which are struck from April onwards in a close propagating frame. The tops of the shoots make the best cuttings. Those who can secure seeds will, however, obtain better plants, as the seedlings are more vigorous and healthy. They are also less likely at first to fall a prey to the attacks of red spider, which is very troublesome to the *Reinwardtia*. At the blooming time a temperature of 55deg or a little more will be found to suit the *Reinwardtia*.—SOLENT.

NOTES & NOTICES

Royal Meteorological Society.

The next ordinary meeting of the society will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, the 17th instant, at 7.30 p.m., when the following papers will be read: "Repert on the Phenological Observations for 1903," by Edward Mawley, F.R.Met.Soc., F.R.H.S. "Observations by means of Kites at Crinan in the Summer of 1903," by W. H. Dines, B.A., F.R.Met.Soc.

Rugby and District Horticultural Society.

Mr. Wm. Bryant, the secretary, writes to say that his committee have fixed the dates for the next show on Nov. 16 and 17. The balance-sheet for 1903 shows a small deficit, but the ladies who have a stall in aid of the Royal Gardeners' Orphan Fund were enabled to send a cheque for £7, making the total sent from this source during the society's existence £93 18s. 8d.

Scottish Horticultural Association.

At the Scottish Horticultural Association's meeting on February 2, exhibits were few but interesting. Mr. Smale, Blackford Park, showed beautiful branches in most prolific bloom of Clematis indivisa. Mr. T. A. Scarlett exhibited specimens of selected Northern Star Potato; also a single tuber of Eldorado said to be worth £25. Lycaste lanipes lasioglossum was shown by Mr. James Hunter, Bangholm Bower, Trinity From Mr. Comfort a pot of Iris histrioides and cut specimens of Garrya elliptica, Laurustinus, and Jasminum nudiflorum. Votes of thanks were awarded the exhibitors. A paper entitled "Scottish Plant Names," by Mr. Brotherston, Tynningham Gardens, was announced for next month.

Lecture on Sweet Peas at Dulwich.

At a special meeting of the Dulwich Chrysanthemum Society Mr. Percy Waterer read a most interesting and instructive paper on "Sweet Peas." He dwelt on the necessity for a standard in form; for example, the bold upright standard of Black Knight and the hooded standard and wings of Lady Grisel Hamilton. The double form was hardly desirable, but the Cupid and Bush varieties will, no doubt, become popular. The importance of four flowers on a stem is over-estimated, as they are seldom evenly developed. Early planting is strongly advised, good root action being encouraged by cool weather, and deep trenching is important. It is doubtful if change of soil is so important as generally considered, but a change of seed is occasionally desirable. Natural manures are advised in preference to artificial, especially in a liquid state. After giving a list of desirable varieties the lecturer suggested a selection of eighteen, consisting of Dorothy Eckford, Blanche Burpee, King Edward VII., Hon. Mrs. Kenyon, Prima Donna or Lovely, Coccinea, Navy Blue, Lady Grisel Hamilton, Black Knight, Dorothy Tennant, Miss Willmott, Lord Rosebery, Prince of Wales, Triumph, Prince Edward of York, Lord Kenyon, Salopian, and America. The lecturer proceeded to advise planting seeds in pots the first week in February, growing on and planting out after first week in April. The difficulty in Sweet Peas not always coming true is probably to be traced to incomplete fixing, as experiments showed that a variety often varied through difference of soil. It may also follow on the visit of a species of bee which is more prevalent now than formerly. The Sweet Pea has advantages and disadvantages in hybridising and crossing when compared with other plants, as, for instance, the Chrysanthemum. When once a variety has been fixed it is practically inexhaustible, but, of course, it cannot be produced by bud propagation. The lecturer carefully explained the difficult points in cultivation, and incited his hearers to endeavour at any rate by selection to improve the existing varieties as far as possible. Many difficulties which had presented themselves to members were satisfactorily smoothed away, and a vote of thanks to Mr. Waterer and to the chairman, Mr. Humphreys, who was evidently an enthusiastic Sweet Pea grower, closed the proceedings.

Founder of the Smithsonian Institution

The remains of James Smithson, the Englishman who founded the Smithsonian Institution (National Museum of the United States) in Washington reached New York on January 20, having been conveyed from Genoa. The remains were conveyed to the Smithsonian Institution, where a suitable tomb will be erected.

Scottish Challenge Trophy for Grapes.

Full particulars of a great Grape competition for a challenge trophy valued at 50 guineas will be found on page 40 of the prize list for the spring show of the Royal Caledonian Horticultural Society, the said show taking place on May 25 and 26 this year. Eight bunches of Grapes are wanted (not more than two of any variety), and with the challenge trophy a gold badge and £15 in cash are given. The secretary's address is 5, York Place, Edinburgh.

Scottish Forestry.

The Royal Scottish Arboricultural Society's Excursion Committee reports that permission to visit the State Forest School at Nancy, and various State forests in France had been granted by the French Government. The committee was authorised to proceed with the necessary arrangements. It has been agreed that the proposed conference should be postponed till the time of the forestry exhibition in the Highland Society's showyard at Perth in July next.

New York Botanical Garden.

In his report Dr. Britton states that the herbaceous grounds have about 3,000 different kind of plants. Considerable additions were made last year to the fruticetum, which now contains about 665 kinds. In the Salicetum, or collection of Willows, Poplars, and other water-loving trees, the number of species cultivated is about thirty. In all, the number of kinds of hardy trees now in the garden, including some still in the nurseries and too small to be set out, is about 450. The number of species now exhibited in the public conservatories is about 6,600, as against 5,800 a year ago. At present the total number of kinds of plants represented in all the plantations and conservatories, including the native flora of the garden tract, is about 11,600, which shows a gain during the year of about 1,000 species.

Notes from Newton Mearns, N.E.

January has gone, and its peculiar features were (1) low rainfall; (2) no snow; (3) little frost; (4) high temperature. Seldom have we seen such a mild January; in fact, some of its days were much superior to some we had in May and June last year. Although we should have liked to have seen some frost and snow ere this, still, we are satisfied, for we have been able to have the land tilled; and should frost now come, so much the better. All around the country we see numerous patches of land turned up, and this we seldom see so early in the year. Should dry weather prevail in March early sowing will be accomplished, for there is nothing to keep it back. In the garden all removals and replanting have been accomplished, and we now await spring. The extremely mild weather in January has pushed on vegetation to a considerable extent; but with the advent of February a check may be looked for.—N. B.

Land Rents Round Prestonpans, Mid-Lothian.

One cannot help remarking on the extraordinary demand for land for market gardening purposes in the Prestonpans district. No doubt the land in that quarter is very good naturally, and the district has an ample and convenient service of trains to the Edinburgh and Glasgow markets. But, on the other hand, the Prestonpans district possesses no particular advantages in regard to earliness or climate. It is about eight miles from Edinburgh, and it is outwith the limit for the cheap Edinburgh rate to Glasgow. And, besides that, the railway companies are threatening trouble just now by affirming that, from and after a certain date to be afterwards fixed, they will refuse to carry parcels of perishable produce under one ton in weight by goods train except at "owner's risk." The rents of land, even where unprovided with any buildings whatever, are stated to range up to £10 per acre. It would seem that there is either a good deal of money to be made at the market business, or else there are plenty of men with money who are ready to try their hands at market gardening in the vicinity of the scene of Johnnie Core's defeat.

Robert Fenn and the Potato Society.

The secretary of the National Potato Society writes to say that since Mr. Fenn's letter appeared on page 100 of last week's *Journal* (where he declared he was a society within himself, and must remain so!) the latter has "succumbed" to the solicitations of our friend. "He has subscribed £1 to the N.P.S., and does not think any V.M.H. holder should send less."

Retardation v. Forcing.

In France, and in some of the largest nurseries and private gardens in England, there exist cold-rooms or stores, pitch-dark and packed full of Lily of the Valley crowns, Lilacs, and other bulbs and plants. When blooms from these are wanted for market or other purposes, no matter at what time of the year, the roots are removed from the cold store and are planted in an ordinary hothouse. Judging from the trend of present-day practice, retardation, as opposed to forcing, is coming more and more into favour.

Who's Who, 1904.

This biographical annual grows more and more bulky, because a larger number of biographies are yearly included. To persons whose associations take them much into the society of their fellow-men such a book as this becomes of priceless value, and we wonder how journalists, commercial travellers, and public men would succeed without it. One hears a name: a reference is made to "Who's Who," and biographical notes of that person are sure to be found therein. The price is 7s. 6d. net, from all booksellers.

New Apple on the Market.

In future years the English fruit-grower will have to face further competition from the imports of summer Apples. Heretofore the American fruit has consisted of autumn and winter or late keeping varieties. Now competition with early Apples will have to be studied. A new variety, the Randolph, has been tested and found to be suitable for shipment. It has an acidulated but pleasant flavour. Its great attraction, however, consists in its colour, the skin putting on a vivid scarlet. The tree bears heavy crops, and the fruit, on account of its skin, commands a free sale whenever offered. It is said to be the most promising commercial Apple introduced during recent years.

"The Estate Magazine."

The issue for February 1 has reached us, and proves this publication to be one of a useful character for country gentlemen and estate agents. It is issued, indeed, as a supplement to the "Country Gentlemen's Estate Book," which we have reviewed in past years. There are a number of features of special interest to our readers, such as the articles on Studley Royal, the property of the Marquis of Ripon, and full particulars of the co-operative creamery in which his lordship takes a great interest; besides articles on "Measuring Standing Timber," "The Paving and Surface Drainage of Stables," "Electric Lighting for Country Houses," "A Word for the Fens," "Agriculture and the New Fiscal Policy," "Farm Poultry Houses," "The Potato Boom," "The Preparation of Forest Trees for Planting," "The Gardening Outlook," &c. The price is 6d.

Scottish Instruction in Forestry.

A conference was recently held between delegates from the University Court and from the Edinburgh and East of Scotland College of Agriculture, to consider a letter received from the secretary to the Scottish Education Department regarding instruction in forestry. The following heads of agreement were adopted for report to the University Court and the Governors of the College:—(1) That the University of Edinburgh is the proper party to undertake the central work of forestry teaching in Scotland; (2) that the agricultural colleges are the proper parties to carry out the work in the provinces; (3) that these agencies should keep in touch with each other to prevent overlapping; (4) that a grant of public money is essential; (5) that the institution of a degree in forestry is to be cordially welcomed. With regard to an evening class, it was stated that the University Court would not be likely to undertake any classes that were not arranged upon a University standard. It was the intention of the University Court to found a degree in forestry, and the College has taken over certain forestry classes which were being originated by the County Council of Fife.

Forestry Problem of the United Kingdom.

This is the title of a paper to be read at the Carpenters' Hall, London Wall, on February 25, at 8 p.m. Free tickets can be had on application to Mr. J. Hutton Freeman.

Appointments.

Mr. T. W. Turner, for a number of years general foreman Royal Horticultural Society Gardens, Chiswick, has been appointed Superintendent of Grounds, Royal Hospital, Chelsea. * * Mr. E. Watkinson left Normanswood, Farnham, Surrey, on the 8th, to become head gardener at Itchel Manor, Crondall, Hants.

United Horticultural Benefit and Provident Society.

The monthly committee meeting of this society was held at the Caledonian Terrace, Adelphi Terrace, Strand, on Monday evening last. Mr. Chas. H. Curtis presided. Fourteen new members were elected, making thirty-one in the two meetings this year. The annual general meeting will be held at the above hotel on Monday, March 14, at 8 p.m.

Where the "Journal" Circulates.

Those who take an active and kindly interest in our efforts will long ago have become assured that the circle of *Journal* readers is a very wide one. We have occasional contributions from New Zealand, Tasmania, Australia, South Africa, British Central Africa, the Gold Coast, Egypt, China, Japan, the United States, and Canada, as well as from the centres in Europe. But what has prompted this short reference is the receipt of a little letter, not from a far-off land, but from Harris, one of the larger islands of the Hebrides, or Western Islands of Scotland. One would hardly expect horticulture to flourish there, but our correspondent, Mr. Robert Sinclair, manages a plant nursery with success.

Floods in the Thames Valley.

We hardly need to tell our readers that parts of the Thames Valley have been flooded as they were last year, for the daily newspapers have conveyed the news by elaborate descriptions and illustrations. But while the rains have given us frequent displeasure of late, let all of us who have come off with nothing worse than damp feet or clothing think ourselves fortunate, when we know that at Maidenhead and elsewhere people's dwellings are surrounded with a foot of water, streets are flooded, and acres and acres of good land are deeply covered. This is no exaggeration. In a journey to Reading on Saturday last this interesting though deplorable condition of affairs was laid before us. The Kennet Valley was even worse, according to report. In a recreation ground east of Reading only the top back bars of the seats appeared above the water. * * We learned at the Drill Hall on Tuesday that some Apple orchards in Kent are one foot to two feet under water.

Shrewsbury Show.

The annual meeting of the Shropshire Horticultural Society was held on Friday. Nothing apparently can seriously interfere with the prosperity of the society and the success of its great summer fête at Shrewsbury. The ceaseless rain on the second day of the exhibition last year, which will long be remembered by all who had to suffer it, and which has had only one parallel in the twenty-nine years' history of the society, ought to have caused a deficiency on the accounts; instead of that, there was a profit on the fête of about £400, and the total takings for the year amounted to the big sum of £4,418, a figure which has only been exceeded five times, in the years 1897, 1899, 1900, 1901, and 1902. Before 1897 the largest amount received was £4,228 2s. 10d. in 1896, nearly £200 less than last year, and in 1895 the takings reached £4,000 for the first time. In 1898 the income fell to £4,389, a drop of nearly £130 on the previous year, when the figure was £4,517. The receipts in the four years 1899-1902 were as follows:—1899, £4,739 10s. 11d.; 1900, £4,640 13s. 6d.; 1901, £4,746 16s. 1d.; 1902, £5,001 15s. 5d. Having a very good reserve fund, the committee of the society have generously voted most of last year's profit in donations to deserving causes, the lion's share (100 guineas), going towards the erection of a new greenhouse in the Quarry. The public will be interested to know that the total takings of the horticultural society since its inception in 1875, when £791 was thought a splendid income, amount to the enormous total of £84,004 16s. 8d., and £7,194 2s. 7d. has been distributed in donations.



The Horticultural Hall.

Noticing in last week's *Journal* that your correspondent "G. H. H." has referred on page 101 to the Royal Horticultural Society's new hall, suggesting a subscription from gardeners, I would ask, Cannot the Royal Horticultural Society offer some real benefit to the affiliated societies to subscribe towards the cause, as many country gardeners and amateurs cannot see any benefit in sending their hard-earned money to London for a new hall unless they can see some small return. Having just lately had the opinion of over 100 members of an affiliated society, I am sure something should be done to induce societies to subscribe. —A COLLECTOR.

Matters of Moment.

The forcible but plain arguments advanced by "G. H. H." (page 101) are most interesting, and should be the means of enlisting greater sympathy and more active support from the many who, in Parliamentary language, sit on the fence awaiting the evolution of the all and everything pertaining to the charitable and other phases of which "G. H. H." writes so well, so fluently, and so truthfully. The average gardener's life is, and will always be, one of comparative seclusion. This being so, it cannot be denied that the associations and societies which of late have claimed so much notice need time to enlist that practical sympathy which is so much desired. At present the laxity of action extended to the various movements instanced by "G. H. H." must have a depressing effect on those who have done and are still endeavouring to espouse their cause and place them on a basis which by active combination might become so helpful, not only to gardeners and gardening, but even Imperial needs. Such a small percentage of subscribers to the

GARDENERS' BENEVOLENT INSTITUTION

as that instanced by the *Journal of Horticulture* recently seems almost incredible. The benefit that might accrue from the annual gained to the subscriber and others less fortunate in life's race can be realised from cause and effect so lamentably found in the candidates' list issued each year just prior to the election day. I cannot help thinking that if the advantages of the institution could be brought personally before those non-subscribing but eligible "factions of the fraternity" many recruits could be had without much undue persuasion. One would think, however, that the frequent and eloquent references and appeals made would carry conviction; but in this, as in many other matters, there are persons obdurate and unconvertible. It may not prove remunerative to appoint a canvasser to "call in" the wavering ones, but could this not be done on commission by commercial men who traverse every British county in the varied gardening interests? The annually published list would afford a good directory in finding absent names.

THE HORTICULTURAL HALL.

In his reference to the new hall "G. H. H." very rightly says that "private gardeners cannot be expected to do much themselves towards this object, and more especially those who already are guinea subscribers." The means of the average gardener are too slender to permit of much speculation in extras; but, while admitting this, I am persuaded that a shilling or half-crown fund might be made a useful medium for helping out the debt. Many might afford these amounts if such a fund were opened, while they feel compelled by stress of circumstances to hold aloof from an outlay involving a sacrifice which one's means do not provide nor circumstances justify.

GARDENERS' ASSOCIATION—POTATO SOCIETY.

The lack of interest in the proposed National Gardeners' Association seems to me somewhat explained in the fact that it is not clear to many what are the objects aimed at and benefits to be derived. The title should indeed be a fascinating one, and the scheme ought to imply benefit, but the country gardener needs more than a superficial outline. The scheme deserves far better than to be killed by indifference, but its objects and purpose must be made clear ere converts voluntarily ascend the platform and proclaim conversion.

The Potato Society might do much good by protecting the purchasing public against the craze for high prices. New stocks

in the process of excessive propagation will be so weakened that the effort to provide a disease-resisting race of the noble tuber will be a futile one. When the absurdly high figure £100 is paid for half a pound of small tubers, when and at what probable period is the private grower and consuming public to benefit? That the effort to provide a disease-resisting race is justified needs no emphasis, but we have no assurance yet that such a state of satisfaction is honestly within view, nor is it likely to be while such sums are demanded for new stocks.—W. S.

The Abortive Gardeners' Association.

It was with considerably more regret than surprise that I learned from the issue of February 4 that this project had been abandoned. [Not quite; another general meeting takes place on the 23rd.—Ed.] That the idea met with some amount of adverse criticism was not alone sufficient to account for its downfall. A newly-created body usually looks to be criticised, and such criticism is generally looked upon as a healthy sign of interest in its formation and proceedings. Sneers and gibes as to the sorting and grading of gardeners in the same way as is recommended for Potatoes may not have been without their effect, I fear, but were scarcely worthy of notice. I suspect the apathetic attitude of gardeners is more to blame than anything else for the abrupt ending of the scheme. When we know that not one in ten supports one of the best of their charitable institutions, it is after all not surprising to find the result so unsatisfactory. Personally, such an association as mooted would have very little effect, and there are many other members of the profession in like condition; still, there are those who come after. Why gardeners cannot be possessed of an institute or association which shall have the power to give assistance, or through whose courses of instruction young men shall pass and obtain a recognised status, is, put bluntly, merely owing to a lack of energy and money. Architects, engineers, surveyors, and others all possess some such institution, but gardeners are servants, and unless their employers can be interested on their behalf (it would eventually be very much to the employers' interests also) in this matter, it is very much to be feared it will never get much forwarder.—PROVINCIAL.

Ordering Fruit Trees.

I have to thank Mr. Bunyard for his explanation with regard to the ordering of fruit trees and the difficulty and inconvenience experienced in obtaining certain varieties. The form of tree which caused the trouble was bush or pyramid and maidens—surely neither offering any excuse for absent stock? and especially so early in the planting season as October. Had it been February and March, then it could be much better understood. One might easily understand, too, that trees of fancy shape or design might easily fail to maintain supply; but the maiden, of all forms, should be in hand, especially when catalogued. Mr. Bunyard says: "If purchasers would leave themselves in the nurseryman's hands to select substitutes to fill orders they would often get better trees and of varieties superior to their own selection." Does Mr. Bunyard imply by this quotation that gardeners are not qualified nor sufficiently experienced to make their own selection? Much as I respect Mr. Bunyard's good name and reputation, I certainly should not bow to this. In a large garden furnished with fruit trees of nearly all the standard varieties there must needs be a weeding out, and sometimes an extension of some particular fruit. A garden cannot be expected to go on for all time without interchange of variety, and thus when new trees have to be purchased it becomes imperative that those kinds which are found suited to the soil and the purpose of consumption be selected. Wherein, then, is the nurseryman's selection likely to be superior, remembering that the order is directed strictly in accordance with local necessity?

The substitution which Mr. Bunyard emphasises was actually permitted in the case of some varieties asked for, and how did it help me? only in so far as the new comers were actually identical with some that were being discarded as worthless, and one particular variety I would not plant if I was offered trees gratis. Mr. Bunyard's defence of the trade applies amply to his own case, and I look upon him as one of the best of present-day authorities in fruit selection; but I think my former note clearly explained that catalogues are compiled without due regard being paid to the stock those catalogues represent—at least, it is so in some cases. In planting a new garden or an orchard the case is very different from that of renovating an older one already established. A substitution might be permissible in this instance, but neither is Mr. Bunyard's or other nursery trade derived from the growth of new gardens and orchard plantations, nor could the most experienced tradesman or gardener select a given number of kinds that would satisfy anywhere and everywhere, and of Pears in particular.—PLANTER.



Kalosanthus coccinea. (See page 115.)

Royal Horticultural Society.

ANNUAL GENERAL MEETING.

SUMMARY.—The meeting was largely attended. The only incident of note was the proposition of Mr. Gurney Fowler to raise the Fellowship subscription from one guinea to two guineas. Mr. Harry J. Veitch proposed an amendment to impose a guinea entrance fee on new Fellows while maintaining the one guinea subscription as heretofore. This was carried by a large majority. Mr. Gurney Fowler, in response to queries, gave a statement of the income and expenses in connection with the new hall. The meeting was very quiet, and lasted only one hour.

The annual general meeting was held in the Drill Hall, James Street, Westminster, on Tuesday last, Sir Trevor Lawrence, Bart., presiding, and by his side sat a full council. This is likely to be the last meeting of the kind that will be held in the Drill Hall, but no reference was made to that.

The usual notice having been read, the minutes of the last annual general meeting were taken, and then the names of seventy-five new Fellows were read and their election concurred in. Sir Trevor Lawrence then addressed the meeting. He began by saying that the report was so full that he could not attempt to deal with more than a few items. From now a new epoch began for the society. It was originated 100 years ago on the premises occupied by Messrs. Hatchards, the publishers, at Piccadilly, and he thought it spoke eloquently for the durability of British institutions that both the society and the booksellers were so successfully represented to-day. The surplus income of the society this year was £3,641, which is better than at any recent period.

The secretary had supplied Sir Trevor with figures showing that in January this year subscriptions to the amount of £5,757 had been paid in, which is several hundred pounds more than was received four years ago, for the entire year. This proved what a great increase there had been, and also, he thought, went to show what a large number of people are interested in the pursuit of horticulture. At no previous period has gardening been so successfully prosecuted.

The chairman then came to the question of altering the subscription rate. The council had carefully considered the whole matter, and had resolved to put a proposal before the Fellows. Sir Trevor pointed out that things now were not what they were a few years ago. The *R.H.S. Journal* has been practically revived from a mere nothing; there was at one time no Temple Show, and no Holland House Show. He knew that certain Fellows demurred to some extent to the statements in the Report showing how much each Fellow gets for his guinea, and Sir Trevor said that probably the wording should have been made to read that the privileges as stated "can be got." The question had been asked, "Why not leave well alone?" and that was a very good argument. But with the heavy expenses at present, some tax ought to be made.

The council had agreed to a modification of their original proposal, however, though the proposal would be put all the same, to test the feelings of the Fellows. The modification lay in Mr. Veitch's amendment. Sir Trevor Lawrence then moved the adoption of the report. This was seconded by Mr. Alexander Dean.

Mr. Dean opened by remarking that the compliment paid to him by the council in having invited him to second this motion was accepted by him as a recognition of the good work which was done by the Fruit and Vegetable Committee, the oldest of the special committees of the society, and of which he was one of the oldest members. Mr. A. Dean is a lucid speaker, and he addressed the meeting at some length. The society has great responsibilities before it in connection with the new hall and the garden at Wisley. As to whether it was a necessary step to add to the subscription he did not express an opinion, but pointed out that in the absence of a higher fee there was a danger of the society being flooded with merely fashionable people, who might look upon the exhibitions purely as social events. In any case, he suggested that money received from an increased subscription should be ear-marked for either the garden or the hall. Mr. Dean concluded his observations by expressing a hope that the council would keep in view the desires of the Vegetable Committee to have an annual vegetable exhibition with that of fruit.

The adoption of the Report having been moved and seconded, Mr. H. J. Elwes rose. The value of the *Journal*, he said, was put down at £1 10s. from each Fellow, and he suggested that those who really desired copies of it should be asked to pay for the same, apart from their subscription. This would reduce expense on this head.

Then he desired to know whether the council purposed making use of any part of the £17,500 invested funds which were "lying idle," in order to clear off the £15,000 debt of the hall? He was gratified to see that the new building was to be first paid for, before the development of Wisley was undertaken.

In reply, Sir Trevor Lawrence said that the question of the *Journal* had been considerably discussed. But he was informed by the secretary that a large number of Fellows in the country joined the society simply to insure getting that money volumes. If any Fellows were willing to forego the *Journal*, some saving might be expected, but how to devise a workable plan was the difficulty. The chairman asked Mr. Gurney Fowler, treasurer, to make a statement in regard to the hall.

The treasurer supplied abundance of figures, and the suggestions therein made commended themselves to the Fellows, who, however, could not have resolved them critically in their minds. Such matters require study. The amount of money received is £22,561, and the interest on temporary investments is £451, making a total of £23,012. Contracts had been made with contractors to the amount of £34,780, of which £10,379 had been paid. There is, therefore, liabilities to the contractors amounting to £24,400, and £13,000 to meet this sum, leaving a deficiency of £11,399, without allowing for the expenses of hall and office furniture. The actual liquid assets which can be counted on are £20,000. It is proposed that investments be placed with the bank as security for a temporary loan till it is seen what amount of subscriptions may yet come in. So much as £1,500 had been received during January which had not previously been promised, and this was looked upon as a good omen. If the Fellows did not clear off the outstanding amount on the hall a mortgage would be secured at favourable terms, and which would be met out of the annual income.

But not only was the question of capital one of importance, there would also be necessary expenses in connection with the new building. It might eventually be necessary to raise a loan at 4 per cent. on the security of the building and the site, as properly possessed by the society. There would be an annual expenditure entailed by the new hall of £2,057, but the current expenses for office rents and hire of Drill Hall, amounting to £1,584, would be saved. The treasurer's remarks were greeted with applause.

The chairman in again rising, referred to the constant influx of Fellows, which showed no falling off. With reference to Wisley and its endowment, he said that there was every reason to believe that £5,000 would be secured as the surrender value of the Chiswick lease. Sir Trevor then alluded to the good work of the society's committees, and returned thanks to these various bodies. An interesting announcement was that an assistant secretary had been appointed, as the office work had become so very heavy. The council had that day also voted an honorarium to the office staff in recognition of their devoted and ungrudging services. The superintendent at Chiswick and his staff were also complimented on their work.

It now came the time to make the council's proposition regarding subscriptions (i.e., to make the Fellowship subscription two guineas instead of one), and this was in the hands of Mr. Gurney Fowler, who pointed out that any rise would not affect the pockets of present Fellows—only new ones; and bonâ fide gardeners would still only require to pay one guinea. An increased subscription would help the hall fund; secondly, if all flower lovers joined the Society, what of the receipts at the shows? These would prove a heavy loss. Thirdly, the clerical work is becoming very heavy; while fourthly, it is customary in many clubs to raise the entrance fee after a time, for new members are receiving the additional privileges that old Fellows had been at pains to build up. Mr. A. H. Pearson briefly seconded.

The amendment which had been referred to from the chair was at once moved by Mr. Harry J. Veitch. It should be understood that the council as a body were open-minded in the whole matter, and no antagonism was intended when one of themselves introduced this new form of motion. Mr. Veitch proposed that new Fellows pay one guinea entrance fee, and one guinea as a minimum annual subscription with the exception of working gardeners and persons resident abroad. Mr. Veitch pointed out that many Fellows voluntarily pay two guineas at the present time, and twenty of the Fellows elected that day had done this. Surgeon-Major Ince seconded, and when put to the meeting it was carried by a large majority. Mr. Elwes inquired if the entrance fees were to be treated as capital instead of income, and the chairman replied that that would have to be considered. A vote of thanks to Sir Trevor Lawrence, proposed by Sir John T. D. Llewelyn, concluded the meeting.

THE EXHIBITION.

The fortnightly exhibition was, as one expected to find it, very interesting. Orchids were numerous, and with Ferns, Primulas, forced Lilacs, Azaleas, and the hardy plant groups there was plenty to interest visitors.

Fruit and Vegetable Committee.

Present: Mr. George Bunyard (in the chair); with Messrs. W. Balderson, Jos. Cheal, W. Bates, Geo. Woodward, S. Mortimer, Alex. Dean, Wm. Pope, Horace J. Wright, Wm. Fyfe, James Gibson, Edwin Beckett, Henry Parr, Geo. Reynolds, F. Q.

Lane, John Lyne, J. Jacques, Owen Thomas, James H. Veitch, A. Herrington, A. H. Pearson, and Geo. Wythes.

The only exhibit seemed to be a dish of Pears (Passe Crasane) from Mr. Roger Leigh (gardener, Mr. Woodward), Barnham Court, Maidstone.

Orchid Committee.

Present: Mr. Harry J. Veitch (in the chair); with Messrs. James O'Brien, de B. Crawshay, E. Hill, J. G. Fowler, Jeremiah Colman, F. W. Ashton, H. T. Pitt, N. A. Bilney, F. A. Rehder, R. Thwaites, H. J. Chapman, A. A. McBean, J. Wilson Potter, W. Bolton, J. Charlesworth, H. Ballantine, M. Gleeson, W. Boxall, W. H. Young, H. A. Tracy, W. H. White, F. Sander, H. Little, R. Brooman-White, and Walter Cobb.

Mr. James Cypher, from Cheltenham, brought a select group, in which were *Laelio-cattleya Hippolyta*, *Cypripedium villosum giganteum*, *Dendrobium* x *Cybele* (a very sweet form), *D.* x *Endocharis*, *Cypripedium Lathamianum*, *C. Pitcherianum*, and *Phaio-calanthe nivalis*. (Silver Banksian Medal.)

Messrs. James Veitch and Sons, Ltd., Chelsea, S.W., set up very sturdy and healthy, well flowered plants of *Cypripedium Euryades excellens*, with bold purplish spotted dorsal sepal and purplish pouch. *Zygopetalum* x *leuchochilum* is so named because of its comparatively large, recurving white lip. *C.* x *Gertrude superbum* is from *Chamberlainianum* and *insigne Chantini*.

M. Vuylsteke, Loochristy, near Ghent, Belgium, staged very fine *Odontoglossums*, and *Wilekeanum Norma* bore a raceme of eleven large flowers. *O. W. Minos*, with fifteen flowers, is larger and richer. The brownish transverse markings on the cream-coloured ground give the flower much charm. Messrs. Charlesworth were well represented by a varied group, and particularly conspicuous was *Laelio-cattleya Charlesworthi*, very well flowered. (Silver Flora Medal.)

N. C. Cookson, Esq., Oakwood, Wylam, Northumberland, sent a selection of *Odontoglossums*, spotted crispums, a pure white *O. Pescatorei*, *O. Adriane*, *Oakwood* var., *O. crispum xantholes*, *Oakwood* var. (an exquisitely beautiful white, with deep lemon lip), and some other subjects. (Silver Flora Medal.)

Messrs. H. Low and Co., Bush Hill Park, Middlesex, had excellent pieces of *Phalaenopsis Schilleriana*, *P. Stuartiana*, and *P. amabilis*, which were much admired; *Dendrobium Wardianum*, *D. primulinum giganteum*, and a fine white form of *Cattleya Trianae*. (Silver Banksian Medal.)

Messrs. B. S. Williams and Son, Upper Holloway, London, were forward with a robust collection of *Cypripediums* *Lathamianum*, *Amesianum*, *Harrisianum*, *Williams' var.*, *villosum*, *Sallieri Hyeum*, *Thompsoni*, *Pitcherianum*, *Williams' var.*, *Boxalli nigrum*, and *Measuresianum*. (Silver Banksian Medal.)

Mr. G. F. Moore (grower, Mr. W. H. Page), Bourton-on-the-Water, staged a very choice group of the rarer hybrid *Cypripediums*, all in a high state of culture. (Silver Banksian Medal.)

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. H. B. May, Geo. Nicholson, W. Y. Baker, R. Dean, John Green, E. Molyneux, G. Reuthe, R. Hooper Pearson, John Jennings, C. R. Fielder, Chas. Dixon, W. Bain, C. J. Salter, Chas. Jefferies, H. J. Cutbush, John A. Nix, R. M. Wallace, R. C. Notcutt, Chas. E. Shea, W. P. Thomson, R. Wilson-Ker, Wm. J. James, G. H. Jenkins, Chas. Blick, and C. T. Druery.

Messrs. J. Hill and Son, Barrowfield Nurseries, Lower Edmonton, arranged a beautiful display of Ferns, without any overcrowding. *Nephrolepis Fosteri*, *Gleichenia flabellata*, *Gymnogramma schizophylla gloriosa*, *Brainea insignis*, *Dicksonia culcita*, and *Davallia tenuifolia Veitchi*, were amongst the best specimens, while smaller plants were staged in variety. The edging, composed of *Ficus repens*, gave a pretty effect, and a large basket of *Saxifraga sarmentosa tricolor* made an attractive bit of colouring.

Mr. Geo. Reuthe, Hardy Plant Nursery, Keston, exhibited a small collection of Snowdrops, Colchicums, Crocuses, and Irises, also plants of *Saxifragas*, and the pretty foliage of *Shortia galacifolia*.

Messrs. W. Cutbush and Son, Highgate, staged a tasteful group of forced shrubs and alpine plants. The arrangement left little to be desired. There were Lilacs in variety, *Forsythia suspensa*, *Jasminum nudiflorum*, *Daphne Mezereum album*, *Prunus triloba flore-pleno*, and *Rhododendron dahuiricum*. A collection of Hellebores, *Scilla trifolia*, *Sternbergia Fischeriana*, Primroses (chiefly double varieties), *Galanthus Fosteri*, and a nice collection of Irises—which included *I. Histrio*, *I. Tauri*, *I. Histrioides*, and *I. Heldreichi*—were noteworthy.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, contributed a nice display of *Cyclamens* in 5-in pots. The plants were well grown, and the blooms well developed. A few Lilacs and Palms made an appropriate background. A beautiful spring display was made by Mr. John Russell, Richmond, who had a large group of Azaleas, Lilacs, and foliage plants.

From Messrs. Barr and Sons, King Street, Covent Garden,

came a pretty group of bulbous and other flowering plants, tastefully displayed in moss. The giant *Galanthus Elwesi* was in excellent form; Irises were a strong point, and included *I. reticulata histrioides*, *I. Heldreichi*. The well-known *I. reticulata* and *I. unguicularis* were here. *Primula obconica* was displayed in variety, and the collection of Hellebores was most interesting, as were also the collection of Crocuses.

A collection of Primulas and alpine plants was staged by Miss Hopkins, Knutsford, who had the blue Primroses, and a large number of double and single varieties in good form. The old gold-laced *Polyanthus Lancashire Hero* was noteworthy.

Messrs. J. Cheal and Sons, Crawley, made a display of rock plants arranged in boxes in the natural style. The background was composed of suitable Conifers, Hellebores, Primroses, *Saxifragas*, and *Sedums* were the chief features. From Mr. W. Palmer, Andover Nurseries, came a nice table of double *Primula sinensis* named *Queen Alexandra*. The plants are vigorous and the flower trusses large, while the colour may be described as a very pale pink—a really useful variety.

Messrs. H. Cannell and Sons, Swanley, occupied a large space with Primulas staged in their well-known style. The varieties here were a vast improvement on the older stellate forms, a few of the best being *Queen Alexandra*, *Fairest of the Fair*, *Red Rover*, *Triumph*, and *Kentish Queen*. The firm also staged boxes of flowers of the fimbriated type, which comprised all the best colours. A table of *Coleus thyrsoideus* in grand form was also exhibited.

Mr. W. J. Godfrey, Exmouth, staged *Chrysanthemum Winter Queen* in first-rate condition. The blooms were disbudded, and the variety is undoubtedly most valuable for the late winter work.

An interesting display of alpine plants came from Messrs. T. S. Ware, Ltd., Feltham. The chief features were Hellebores and Primroses in variety; *Tanakea radicans*, *Cyclamens* in variety, *Adonis amurensis*, *Crocus* species, and *Primula obconica*. The latter contained a well-flowered double form. The quaint *Scolopus Bigelowi* was noticeable—but what an odour!

Mr. Geo. Mount, Canterbury, exhibited a small group of cut Roses in splendid condition. The flowers and foliage left little to be desired. The varieties were *Caroline Testout*, *Mrs. J. Laing*, *Niphetos*, *Madame Gabriel Luizet*, *Liberty*, and *Mrs. W. J. Grant*.

Messrs. Sutton and Sons, Reading, arranged a grand display of Primulas, the first variety of notice being the new Double Duchess, an exact counterpart of the single form. The latter was also in fine form. A very striking variety was *Brilliant King*, the brightest form yet seen, the foliage being perfect. The varieties *Giant White*, *Crimson*, *Royal White*, *Lavender*, *Terra-cotta*, *Pink* and *Blue* were models of growths and of development. Carnations were well staged by Messrs. W. Cutbush and Son, Highgate. The best varieties being *Mrs. S. J. Brooks*, *Lady de Ramsey*, *Chas. H. Curtis*, *Mrs. T. Lawson*, and *The Queen*.

A bright display was that from Messrs. Jas. Veitch and Sons, Ltd., Chelsea, who staged some *Coleus thyrsoideus*, with its charming blue flowers; *Eupatorium vernale*, and *Jacobinia coccinea*, each in pleasing contrast. A few plants of *Cheiranthus Kewensis* were on view.

MEDAL AWARDS FROM THE FLORAL COMMITTEE.—Silver-gilt Flora to Sutton and Sons, Silver-gilt Banksian to Hill and Son, Silver Floras to John Russell, Cannell and Sons, and Barr and Sons. Silver Banksian to Cutbush and Son, J. Veitch and Sons, Ltd., and Geo. Mount. Bronze Flora to W. Palmer, Andover.

Certificates and Awards of Merit.

Begonia, *Mrs. H. T. Durson* (T. Dixon, Woodside Nursery, Polegate, Sussex).—A winter-flowering variety of semperflorens, robust, leafy, and clustered with deep pink flowers. A.M.

Cypripedium x *Adippe* (Capt. G. L. Holford, C.I.E.).—The parentage was not recorded. It is a very handsome flower with a goodly trace of *Spicerianum* in it. The dorsal sepal is large, tinged green at base, with rose-purple body and white edge. The petals and pouch are brown. A.M.

Cypripedium aureum virginalis (Mr. G. F. Moore, Bourton-on-the-Water).—The parentage here was *Lecanum* x *villosum*. The dorsal sepal is white, with a green base; the petals and pouch are greenish-brown. The form is very attractive. A.M.

Cypripedium x *W. H. Page* (Mr. G. F. Moore).—Parentage: *C. niveum* x *Boxalli atratum*. The flowers are small, with almost white pouch, the petals and back sepals being lined and spotted with purple-mauve. The name given to it is that of Mr. Moore's orchid grower. A.M.

Cypripedium x *Thompsoni* (Mr. G. F. Moore).—Parentage: *C. villosum aureum* x *Calypso*. A very large flower of shining surface, petals and pouch rich brown, edged a pretty greenish tint, and the dorsal sepal is flushed with bright purple and edged white. A.M.

Eupatorium vernale (J. Veitch and Sons, Ltd.).—Decidedly one of the best species, and a fine greenhouse plant for this time of year. It is very robust, with thick ovate-elliptic, cordate leaves, darkly coloured.

The stems are more or less woody, erect, and terminate in eymose panicles of white flowers. It is far superior to *E. viparium*. A.M.

Tulipa Kauffmanniana aurea (Cutbush and Son).—A bright form of this fine Tulip. The segments are oblong lanceolate, with rich yellow ground, and a broad crimson band from the base to the tip of the segments on the outer side. A.M.

Caryota excelsa.

In their native habitats, the Caryotas have economic virtues, providing a nutritious sago (*C. urens*) for the natives, as well as a plentiful supply of Palm wine. Under natural conditions they frequently grow to a height of 80ft.

"The Treasury of Botany" says Caryota is a genus of very elegant lofty Palms (*Palmaceæ*) with graceful twice-pinnate leaves, the leaflets of which differ very much from those of other plants of this order. In general the leaflets of pinnate-leaved Palms are long, narrow, and tapering upwards to a point; but those of Caryota, on the contrary, are comparatively short, tapering to the base, very broad at their top end, where they are jagged as though gnawed by an animal. Nine species of this genus are known, all of them natives of India and Indian Islands. They have flowers of separate sexes, borne upon the same spike, or sometimes on distinct spikes. The calyx is of three distinct sepals, and the corolla is three-parted; the male flowers have numerous stamens connected together at the base and forming a cup; and the females a one or two-celled ovary, with as many stigmas, and three barren stamens. The fruits are nearly round, somewhat fleshy, and generally of a purplish colour, containing one or two seeds.

Quantities are raised in this country from seeds, and the plants are cultivated in plant-stove, the soil they delight in being a rich loam. *C. excelsa* is an attractive plant, and originated, we believe, in the hands of Mr. H. Wildenow.

Societies.

Ipswich: Annual Meeting.

The fourth annual meeting of the Ipswich Mutual Improvement Society was held in the saloon of the Public Hall on the 28th ult., the president, Mr. R. C. Notcutt, occupying the chair. The report and balance-sheet for the year were read by the secretary, and, after some discussion, unanimously adopted. The membership shows a net increase of twenty-five. Receipts for the year (including balance of £12 16s. 2½d. brought forward from 1902) total up to £34 8s. 2½d. The expenditure was £22 3s. 3½d., leaving a balance in hand of £12 4s. 11d. The slightly reduced balance may be accounted for by the fact that the society has engaged several specialists to lecture during the year. Mr. R. C. Notcutt was re-elected president, and Mr. J. H. Murgatroyd secretary and treasurer. After the business was concluded a musical programme was indulged in for the remainder of the evening.—E. G.

Newport, Mon.: Cucumber Culture.

The usual meeting of the Newport (Mon.) Gardeners' Mutual Improvement Association was held on Wednesday, January 13, when Mr. Waller, representative of the Cardiff Gardeners' Association, gave a very interesting and instructive lecture on "The Culture of the Cucumber." Mr. Waller, who spoke mostly from a market grower's point of view, first of all compared the prices obtained a few years ago with the prices obtainable at the present time, the margin of profit being much less now than it was, say, ten or twelve years ago. He then went on to say that for winter culture especially proper structures were required and bottom heat necessary. Seeds must be sown in September in boxes, the seedlings to be potted carefully before they made the rough leaf, then planted out 3ft apart in beds composed of turfy loam and about one-fourth well decayed manure. Stop them when they are grown about half way up the roof of the house; also stop the laterals. Water carefully with water at the temperature of the house (which should not be less than 60deg), and not overcrop. Winter Cucumbers will not do well when grown near large towns.

For summer crops sow seeds in March in boxes, as already hinted; pot and plant out in beds 2½ft apart. Soil: loam, decayed manure, a little soot and bonemeal. Keep plenty of heat and moisture; stop as above; give liquid manure when in full growth, and top-dress as the roots come through the soil. Air carefully; give plenty of water; shade but a little, and close early. Mr. Waller then spoke of the diseases, mildew trouble, and insects to which the Cucumber is liable; also their prevention and cure. Fruits 15in to 18in in length are the best. The varieties recommended were Cardiff Castle (one of the very best for winter work), Rochford's Market, Rollisson's Telegraph, Sion

House, Master's Prolific, and Lockie's Perfection. Messrs. Jones, Jarvis, Wiggins, Harris, Woodward, Dodds, Basham, Sharratt, Daniels, Bishop, Powell, Duff, and Bale took part in a good discussion that followed. A very hearty vote of thanks was accorded to Mr. Waller for his able paper. Mr. J. Duff presided over a good attendance.

London Dahlia Union.

The annual general meeting of the subscribers to the Union was held at the Hotel Windsor on the 26th ult., at 2.30 p.m., Mr. John Green (chairman of the committee) presiding, there being a good attendance. The minutes of the last meeting having been read, the secretary (Mr. R. Dean) presented a duly audited balance-sheet showing receipts £58 8s. 6d., in addition to unpaid subscriptions of £2 7s. 6d. which had been received since the audit of the accounts, and the expenditure of £58 6s. 1d., leaving a balance in hand of £2 10s. 0d.

The secretary read a long list of names promising support to the Union in the present year, and said there was every prospect of a fine exhibition and a financial success. In moving the adoption of the financial statement the chairman congratulated the subscribers upon the very fine display made at Earl's Court in September last, the show being admirably arranged and both a great surprise and a great delight to the exhibitors and visitors. It afforded an opportunity for the new Cactus varieties to be seen in their best character, and it would be a distinct loss to London, and also to the Dahlia interest, if the show were discontinued.

They had already approached the London Exhibitions, Ltd., at Earl's Court, and had been most favourably received. There was every promise that an exhibition would be held there in September. The chairman concluded by stating that they had every reason to believe they had secured a gentleman of position in the horticultural world as president, whose name they hoped shortly to announce. Several special prizes were announced. Mr. John Green was re-elected chairman, and Mr. R. Dean treasurer and secretary; the arrangements for the show in the present year. A hearty vote of thanks was passed to the chairman and secretary.

Cardiff: Orchids.

A meeting of the Cardiff Gardeners' Association took place at the Grand Hotel on Tuesday, January 26, Mr. H. R. Farmer presiding. Mr. E. W. Davy delivered a lecture entitled "Orchids," dealing largely with the history and adventures of collectors in various parts of the world, also defining in general the natural habitat of the various genera. He recommended strongly to adopt the mode of cultivation as near to that as possible which they invariably enjoy in their native climes. So much was the lecture appreciated that Mr. Davy was asked to repeat the same at another date, to be arranged for that purpose. The lecturer had brought with him fifty hand-painted sheets representing various types of orchids by way of illustrating his discourse. The best thanks of the meeting were accorded Mr. Davy.—J. J.

Cardiff and County Horticultural.

The fifteenth annual meeting of this society was held on Tuesday, February 2, at the Grand Hotel, Cardiff. Dr. De Vere Hunt presided, and there was a good attendance. The chairman read the committee's report, which expressed regret that the working for the last year, owing to the bad season, resulted in a loss of £85 8s. 11d. The balance from 1902 had been lost, and there was a deficit for the year of £21 12s. 3d., which, should the outstanding subscriptions of £10 12s. 6d. be recovered, would reduce the debit to £11. The gate receipts fell off £75, but the subscriptions showed a slight increase. The expenditure had been somewhat increased by the prize money, the bands, tents, &c., and the reception of the council of the Royal Horticultural Society of London, who came as a deputation to visit the show. They were high in their praise of the exhibits staged, and awarded twenty-four medals in all, besides nine special commendation cards. Notwithstanding the adverse season the total entries exceeded those of the previous year by nearly 100.

The date of the next show was, subject to the Marquis of Bute's consent, fixed for Wednesday and Thursday, July 27 and 28. Upon the proposition of Mr. Shewring, seconded by Mr. Julian, the report was adopted. Mr. Treseder proposed the election of Major-General Lec as president, and the motion was carried with much cordiality. Vice-presidents and a general committee were afterwards elected. Mr. A. W. Morris was unanimously appointed chairman of the committee for the ensuing year. Mr. H. Gillett was re-elected secretary, the proposer and seconder speaking in the most complimentary terms of his past services, and expressing the hope that he would long continue in office. An executive committee was afterwards elected, and Mr. A. Maurice Bailey was appointed auditor. Upon the motion of Mr. Crouch, the Marquis of Bute was heartily thanked for the use of the grounds for the show. The proceedings terminated with a vote of thanks to the chairman.

Liverpool: Annual Meeting.

The twenty-fifth annual meeting of the Liverpool Horticultural Association was held in Victoria Street on Saturday evening. The report was presented and adopted after various comments having been expressed. The shows held last year were financially a failure, especially the Chrysanthemum show held in the Drill Hall, Botanic Road. Several new members were elected on the committee of management, and various suggestions were brought forward as to how to make the shows more attractive to the general public. The usual donations of £3 3s. 0d. to the Gardeners' Royal Benevolent Institution and £2 2s. 0d. to the Royal Gardeners' Orphan Fund were given. Mr. Thos. Foster presided, and the usual vote of thanks was passed to that gentleman for his services. Mr. Shrivell, F.L.S., will lecture on "Manures" on Saturday evening, February 13, when we hope to have a good attendance.—J. S.

Birmingham: "Horticultural Exhibitions."

Anticipatory of a more than ordinarily interesting discussion upon the advantages and beneficent influences derived from horticultural exhibitions, there was a good attendance of the members of the Birmingham Gardeners' Society, when Mr. Walter Jones essayed to open the discussion on February 1. Mr. W. B. Latham, the esteemed veteran chairman of the association, presided. Mr. Jones ably digested the subject, arguing to the effect that the influences of horticultural exhibitions were far-reaching, affecting, as they more or less did, every class of the community, the amateur and cottager especially. The rich employer enjoyed in the highest stage of quality the products of his garden, by allowing his gardener to grow them for exhibition purposes, and this without materially adding to the ordinary expenditure. At the same time, it behoved the gardener not by any means to neglect his ordinary duties for the sake of exhibiting, as unfortunately it has been too often the case, thus annoying the employer. Successful exhibiting also augmented the none too well-paid services of the gardener, and the better enabled him to provide a modicum of support against the exigencies of old age. Illegal and dishonest exhibiting was severely denounced, and required drastic measures for its prohibition, a potent one being the exclusion of the delinquent from ever exhibiting again.

In the animated discussion which followed parts were taken by Messrs. Alfred Cryer, H. Lohrman, C. H. Herbert, W. Spinks, R. J. Hamill, W. Gardiner, and F. Dedicott. In proposing a hearty vote of thanks to the lecturer Mr. Thomas Humphreys gave a concise digest of the various arguments which had been advanced. A certificate of merit was worthily awarded to Mr. A. Cryer (gardener to J. A. Kenrick, Esq., Berrow Court, Edgbaston) for half a dozen exceedingly well grown Cyclamen plants, profusely bearing a multiplicity of very large blooms in variety of colour, Mr. Cryer being esteemed as the doyen of growers in the Midlands.

The Metropolitan Public Gardens Association.

OPEN SPACES.—At the monthly meeting of the Metropolitan Public Gardens' Association, held at 83, Lancaster Gate, on Wednesday afternoon, the Earl of Meath, chairman, presiding, a letter was read from the Most Rev. Archbishop Bourne, consenting to become a vice-chairman of the association in the place of the late Cardinal Vaughan. It was agreed to offer seats for St. Giles's Churchyard, Cripplegate, for a space in Grove Lane, Camberwell, and for a proposed park at Upper Clapton, and to make a grant of some gymnastic apparatus for the Duke of Norfolk's Cadet Corps, Mile End Road, subject to the premises being satisfactory. It was stated that the association had agreed to lay out the Norfolk Square area, Islington, specially adapting it for the use of children, at a cost of about £400, which offer was now under consideration of the Borough Council, and that trees were being planted in the upper part of Lamb's Conduit Street, and in St. Philip's Churchyard, Battersea.

Letters were read from the Shoreditch and Camberwell Borough Councils, accepting with thanks the offers made by the association to provide handsome drinking fountains for a site in the City Road and for Addington Square Garden. It was stated that eighteen of the Metropolitan Borough Councils had now replied in favour of the association's proposal to enable them to assist in the provision of open spaces by means of a clause in the London County Council's General Powers Bill, and that no adverse replies had been received. Progress was reported with regard to the scheme for extending Hampstead Heath. Several members criticised the embankment enclosure recently made in Hyde Park, and it was explained that it was intended as a site for greenhouses and storage yard, and that a site adjoining Kensington Palace, hitherto utilised in this way, would be laid out as a garden and opened to the public, so that the area of public space would not be diminished. It was agreed to offer to adapt the enclosure in Golden Square for public use if transferred to a public body for maintenance, and a letter was

read from the owners of St. Peter's Square, Hammersmith, which is in danger of being built over, in regard to their offer to sell this fine enclosure for £12,500, a price which was considered prohibitive.

Cardiff Chrysanthemum: Annual Meeting.

The seventeenth annual meeting of members of the above society was held on Friday evening, February 5, at the Grand Hotel, Westgate Street, Cardiff. Mr. John Julian occupied the chair, and the interest evinced in the society was shown by the fact that the attendance was much more numerous than usual. The annual report was submitted by the chairman. It stated that the year 1902 ended in a loss of £18 1s. 3d., contingent on the outstanding subscriptions being recovered. Unfortunately, £4 9s. was irrecoverable, and this left a total deficit of £22 10s. 3d. at the beginning of the year 1903. The whole of that had been paid off, and the society starts this year clear. The total subscriptions for last year amounted to £124, about



Caryota excelsa.

£8 more than the year previous. The door receipts were most encouraging, and amounted to £138 5s. 11d., being the highest since the year 1899, which was considered a record year, £129 9s. 3d. being taken at the doors. Altogether, this was the best account presented for many years. The late show was admitted to have been one of the best, both in respect of competitive and trade exhibits. The date of the next show has been fixed for November 2 and 3.

Councillor Curtis was unanimously re-elected president of the society. The whole of the vice-presidents were re-elected. Mr. John Julian (who vacated the chair) was unanimously elected a vice-president, as a recognition and appreciation of his services to the society, especially for the past two years, during this time, as chairman, he being mainly instrumental in bringing the society up to the high standard of excellence and efficiency to which it has attained. Mr. J. Grimes was elected chairman of committee; Mr. F. G. Treseder, vice-chairman; Mr. H. Gillett, secretary; Mr. Crouch, treasurer; and Messrs. Boon and Medhurst, auditors. Reference was made by the chairman and

others to the cordiality with which the officers had worked, and much satisfaction was expressed that the prospects of the society were so promising.—H. R. F.

Croydon: Orchid Culture.

On Tuesday, 2nd inst., the usual fortnightly meeting of the Croydon Horticultural Mutual Improvement Society was held at the Sunflower Temperance Hotel, George Street, when a full meeting welcomed Mr. W. P. Bound, Gatton Park Gardens, Reigate, who read a paper on "Present-day Orchid Culture." As a stimulus to his paper Mr. Bound exhibited some cut blooms, and amongst them were *Cymbidium Hookerianum punctatissimum*, *Dendrobium Snowflake* (*nobile albiflorum* x *Cassiope*), and *Dendrobium Ainsworthii*, Gatton Park variety. Mr. Bound spoke of the general culture of orchids, contrasting the great improvements made now and a few years ago, and yet he considered this class of plant was practically in the infancy of the great scope of cultivation open to it. The methods of propagation by which the plants can be successfully preserved he remarked upon at some length; and not only can the plants be saved, but brighter and better flowers can be obtained by doing this. For the potting operations he itemised the best



Narcissus Empress and N. Orange Phoenix.

The culture of these bulbs in bowls is becoming more largely practised, and when in flower they form welcome additions either in the home or conservatory.

materials to be used, and recommended the use of pots instead of pans or baskets, although with the use of pots greater care must be exercised in watering, which at all times was of great moment in the treatment of orchids.

At the conclusion the chairman (Mr. J. Gregory) proposed a hearty vote of thanks to the lecturer, and this was carried with applause. An interesting exhibit came from Mr. Gregory, who showed a larva of the Staghorn beetle embedded in wood.

Dumfriesshire and Galloway Horticultural.

The annual meeting of this old-established society, which has been improving its position under the directorate of the last three years, was held in the Town Hall, Dumfries, on February 8. Mr. R. Service, of Messrs. Jas. Service and Sons, nurserymen, occupied the chair. Mr. Mann, secretary and treasurer, submitted a report of the funds of the society, which was approved of, and Mr. Mann warmly thanked for his services. The income for the year had amounted to £384 1s. 3d.,

and the expenditure was £383 8s. 2½d., the balance thus being 13s. 0½d. It was explained that the bad weather at the time of the autumn show had been the cause of additional expenditure, and that the expense incurred in endeavouring to establish the Chrysanthemum Show, the first held by the society, had been considerable.

The following office-bearers were appointed: Hon. president, the Earl of Mansfield; president, Mr. W. J. Maxwell, M.P.; chairman, Mr. R. Service; vice-chairman, Mr. James McGregor, of Fotheringham and King, nurserymen; secretary, Mr. Robert G. Mann, "Courier and Herald" Office, Dumfries. Directors: The chairman, vice-chairman, and Mr. S. Arnott, Rosedene, Carsethorn; Mr. J. Henderson, Elmbank Gardens, Dumfries; Mr. Jas. Kennedy, nurseryman, Dumfries; Mr. Kenneth McKenzie, Conheath Gardens, Dumfries; and Mr. J. Learmont, of W. Learmont and Son, nurserymen, Dumfries. It was remitted to the directors to arrange for the show, which will be held on August 26 and 27. The prospects of the society are of a favourable kind for 1904.

Chester Paxton.

The usual fortnightly meeting was held in the Grosvenor Museum on Saturday, under the chairmanship of Mr. G. Lyon, when Mr. E. Stubbs, Bache Hall, introduced a discussion on "Suggestions for the Next Exhibition." From the outset it was evident that all those present were keenly interested in the welfare of the society, and although past exhibitions have always been a conspicuous success several valuable suggestions were made by various members, the most important of these being:— (1) To make the exhibits of Apples and Pears more educational by asking exhibitors to give particulars of the stock upon which the trees have been grafted, as well as the class of soil and situation in which they have been grown; (2) to make a special class for bottled fruits, in which those who do not grow fruit themselves can compete; (3) to offer prizes for collections of vegetables, as well as for winter flowering Begonias, Cyclamens, &c.; (4) To offer prizes for the impromptu naming of hardy fruits by young gardeners and others; (5) to encourage Chrysanthemum specialists to exhibit new varieties of merit; (6) to encourage still further table decorations by ladies resident in the society's district. Hearty votes of thanks to the chairman and introducer brought the meeting to a close.

Feltham, Eedfont, and Handsworth Horticultural.

A meeting was held on Wednesday, February 3, when a paper on "Pot Roses" was read by Mr. B. E. Nettleton, of T. S. Ware's (1902), Ltd. This was a very well-written, interesting, and instructive paper. There was a good company present, who all fully appreciated the worth of the suggestions and hints given by the lecturer.

Newport (Mon). Gardeners.

The usual meeting of the above society was held on January 27, when Mr. G. Brooks, of Clifton, read a paper on the culture of *Daphne indica rubra*. Mr. Brooks, after deploring that so many of the old-fashioned flowers were grown to such a small extent at the present time, went on to explain that his paper gave the particulars of treatment of the *Daphne indica rubra*, as grown by Mr. Shove, head gardener to Lord Fitzhardinge, Berkeley Castle, Gloucestershire, where these plants are brought to a higher degree of cultivation than he had seen anywhere else. Photographs were shown showing the plants covered with trusses of bloom. Mr. Brooks gave the details of treatment. He said that plants grew freer from cuttings than from grafted plants as usually grown.

Mr. Shove's way of striking the cuttings was by taking 5in pots and placing 3in pots inside them, the smaller pots to be filled with crocks, the space between the pots to be filled with sandy soil: the cuttings to be taken off with a heel (September being the best time), and placed firmly in the soil between the pots. Place in greenhouse, cover with a bellglass, which must be removed daily and the moisture wiped off the glass. When water is required it must be given over the crocks in the small pot. At the end of January remove to stove, place on bottom heat. When rooted pot them off into small pots, place back in the stove, being very careful in watering. In April remove to greenhouse. They may be grown in pots, but the best plan is to plant them in a border, against the back wall of a cool greenhouse; the border to be well drained. Soil: Two-thirds fibry loam, one-third peat, a little charcoal, old mortar, 3in bones, and oyster shells. Plant them in January, giving but little water, and being very careful not to plant deep. These plants are not subject to insects. Messrs. Sharratt, Lockyer, Harris, Powell, Woodward, Jones, and Wiggins took part in the discussion. Mr. Brooks was accorded a very hearty vote of thanks. Mr. J. Duff presided over a good attendance.

Ferns and Rhododendrons for Garden Effect.

It is only in the outlying parts of what are generally termed the pleasure grounds surrounding private residences that one finds the Shield Ferns and Bracken, in harmony with Rhododendrons and other shrubs. But how good that effect may be is shown by the illustration on this page. At the present time, when shrubberies and coppices are still being re-arranged or new ones planted, such a pictorial guide may be of service in presenting a vivid, "ultimate effect." We might plead in this place for the inclusion (while planting) of some of the hardy Cyclamens, Colchicums, and Sternbergias, whose claims we have often advocated, and colonies of which could so well be dotted about between clumps of Ferns. Further, by way of naturalising plants, and also in order to insure a greater variety and succession of floral beauty, many Liliums could be planted just on the fringes of the Rhododendron beds, and would benefit from the shelter and soil of the latter.

Vegetable Notes.

Cultivation of Asparagus.

The position held by this vegetable in kitchen gardens is recognised by everyone. The careful cultivation it has received for a great number of years is manifest in some old kitchen gardens now by the wealth of succulent grass that is obtained from old plantings, which tends to show the almost inexhaustible productiveness when well made and cultural details regarded afterwards. By reason that Asparagus remains for consecutive years in permanence, it is important to have the position well chosen, and ground well prepared prior to the planting season. One best suited is where it can be fully exposed to the sun's influence, yet by some means protected from the cutting winds from the north and east quarter.

The question of suitable soil is of paramount importance to insure each year successive supplies of stout grass. I have no doubt but what a porous loam is most conducive to the growth of this vegetable. Where this exists a good return is given, without so much labour being entailed in preparing the ground. In many localities this ideal is far from being attained. Soils, as is generally admitted, vary so much in character. Therefore the medium has to be approached in some measure artificially by the admixture of suitable constituents.

To assume that a fresh planting is intended, either in beds or on the ground level, if natural conditions will permit, a thorough commencement should be made by deeply trenching the plot, using a good layer of the longest litter at the bottom of the trench, and as the work proceeds a substantial tilth should be the object aimed at, by incorporating with the whole proportionate quantities of road scrapings, mortar rubble, and farmyard manure. This should be allowed to remain in an unbroken state until the time of planting.

This procedure of trenching subjects the ground to a porous and deep tilth; also lays the basis of ultimate success, which will be evidenced year by year, whereas, if due attention were not given to this earliest and important detail, a series of failures would probably ensue, especially on heavy land, by a whip-like kind of growth, that would predominate instead of the sturdy grass so much appreciated for culinary use.

The system of planting is best determined by the natural condition of the soil beneath the prepared surface. On a light, warm loam it may safely be planted on the ground level. In the case of heavy soil it would be practicable to adopt the method of raised beds; this would be advantageous for the double purpose of warmth and dryness during winter and spring. A very good mode is to plant in a straight row two-year-old plants, 1ft apart, and 15in between each row. An alley may

be left at every third row, at a reasonable distance from each outside row; at the completion of every pair a 2ft space can be allowed. This, if required, can be utilised during the early part of the summer for a short season crop, such as saladings.

There is generally some attempt with growers during the spring to surface-dress the permanent beds of Asparagus. I firmly adhere to the practice of meeting this requirement with a three layer of light compost, consisting of sand, road grit, spent mushroom dung or leaf soil, in proportionate quantities, mixed with soil preserved from disused Melon or Cucumber beds. A surface of this character, the grass can easily push through clean and straight, and are also delicately blanched at the base. The oft-repeated manurial dressing afforded at this stage in some gardens could with advantage be dispensed with until the season's crop is secured; then an approved manurial dressing, such as salt or Clay's fertiliser, applied would have a most beneficial effect. A mulch of short dung afforded the beds during the month of July would have far more cultural gain upon the succeeding crop. Prevention against the plants becoming too dry at the root, and cultural details regarded throughout the season of growth, accelerates the formation of healthy, robust buds by the autumn. These in a great measure govern the quality of the future crop.—F. W. G.

Potato Culture.

A very pleasant and instructive evening was spent on Wednesday, December 30, by the Stamshaw allotment holders, who met at the Avenue Hotel for a two-fold purpose. The first was to partake of supper, which was a very well served repast, and the second was to listen to a very instructive lecture on Potato growing, delivered by Mr. T. A. Weston, gardening assistant to Mr. W. P. Wright, Hythe, Kent. Mr. Weston mentioned that in the time of King James the plant was so rare that it cost 2s. per pound, but gradually it became a staple food, and the extent to which it was grown in Europe



Shrubbery with Hardy Ferns.

at the present time was enormous. If Britain would only grow the Potato properly, he was convinced that this country would easily defeat Germany. Germany, too, found many uses for its Potatoes, including the production of bad whisky. Last month we imported no less a quantity than 1,836,186 cwt. from Germany. With regard to the recent boom, he believed that it was started by the newspapers. Derby Success was at 10s. per pound, while another variety was £5 per ounce, and, for the price, anyone might think that the tubers were studded with diamonds. The main thing in Potato growing was to find out the variety that suited the soil. A collection of fifty varieties was shown, including such new and valuable varieties as Discovery, Northern Star, Derby Success, Early Queen, Alpha, Gold Coin, King Edward, Empress Queen, Bugbeater, Sir Walter Raleigh, and Pride of the Ochils.

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible, with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

Manettia bicolor.

Enclosed with this short note are a few sprays, or side shoots, of the above-named climber, which at this time of the year I consider exceedingly bright, although not fully in bloom. It is a very easy "doer," requiring cool greenhouse treatment during the whole season of growth, and succeeds in an ordinary rich loamy soil. Cuttings may be taken about April, and grown on into 6in pots, training them around four upright sticks, about 2ft high, which they easily cover. I do not think it is known a great deal, or it would be cultivated more generally, as it is a true *winter* bloomer. For training up the roof of a greenhouse I should think it would suit admirably, in this case using three or four plants in an 8in or 9in pot, and stopping them once, when small, so as to produce a number of leading shoots.—E. B., South Berks.

[The shoots bore numerous crimson, orange-tipped almost fleshy flowers, and healthy, dark green foliage.—Ed.]

The Drinking Habit—Scots v. English Gardeners.

Your correspondent "Scot" writes that "the T.T.'s are in numerous cases terrible tipplers." I am myself a staunch abstainer, even from Scottish whisky, which I am told Scots teetotalers see no harm in taking! With many years of bothy life I have never seen one companion come home drunk. I am not going to say that they were all abstainers, but they have been men whom even "Scot" could not point the finger of shame at. I would not despise a man because he regaled the inner man with a glass of good old ale, but I do detest a sly drinker. I admire the man who has the courage to say No. I hope that "Scot" is not of an overbearing character, or that his manner drives the young men from the bothy. A foreman can make bothy life as near like home as it is possible. Speaking of why Scottish gardeners are (or were) preferred to English, a friend told me about a place which at one time was filled with English gardeners, and which is now filled by Scotsmen, and the reason in this instance was that they were cheaper. Drink is the curse to our land, let it be England or Scotland, and I trust that the correspondence that has passed may show to those young men who frequent the public-houses that they are not learning any good while so doing.—ENGLISHMAN, Berks.

Freesias and Their Culture.

These beautiful flowers are now considerably in evidence. To ensure a good early display of flowers the bulbs should be potted the first week in August, and another batch the latter part of September for a succession of blooms. The potting soil should be three parts good sweet loam, one part leaf soil, and plenty sharp sand, all well mixed together. The finest bulbs should be potted together, putting from five to eight in a 5in pot. The next size should be potted the same way, for if the bulbs are potted all sizes together they are apt to come up some strong and some weak, and the flower spikes are very uneven. After the bulbs are potted they should be placed in a cold frame with about 4in of litter around them to keep the soil moist. When growth is beginning, three parts of the litter should be removed, or else the plants will become drawn and the growth be weak.

After the growths are about 6in they should be neatly staked and taken to the greenhouse, and put upon the shelf as near the glass as possible to get as much light as they can. They are lovers of light and clear ventilation freely on mild days. They will not endure a cutting draught. They can be grown quite easily from seeds by sowing from January to the end of March, whenever it may be most convenient, and they will flower profusely in six months. Another sowing should be made in August to supply flowers in spring. When the flower buds begin to show the bulbs may be fed twice a week with liquid manure, and taken to a warmer temperature to blossom. After the flowering season is over they should not be forgotten; they should be treated just as well after the blooming, so long as there is any green foliage left. One of the chief points in Freesia culture is to get some fine bulbs, then we can expect large flowers. When the bulbs are well ripened they can be sorted out and stored in a cool, dry place, free from frost, until they are wanted for potting again. Freesias like a long rest, and need to be grown quickly to obtain the best results from them.—G. B., Berks.



Hardy Fruit Garden.

PEACHES AND NECTARINES.—There should be no further delay in pruning and training these. Where the old fruiting wood was thinned out after bearing there will be but a small amount of pruning required. The old weakly growths should be removed and new shoots of medium strength laid in for the greater part of their length. Where there is ample room for extension it is foolish to shorten leading growths hard back as is so frequently done. The new wood should not be trained less than 4in asunder, and when very strong 6in is not too much space to allow.

APRICOTS.—In warm localities these will shortly be in flower, and the work of pruning and training must at once receive attention if it has from any cause been delayed. Endeavour to keep the spurs short, while at the same time retaining a sufficient number of fruit buds to ensure a crop. Where space allows, lay in young growth, and though it is not wise to cut these trees more than is really necessary, old, worn-out branches should be eliminated. In planting young Apricots a good proportion of lime rubble should be stirred into the soil.

PROTECTING THE FLOWERS.—Have materials in readiness for sheltering the blossom on all the above. Double fish netting will often prove a sufficient protection in warm localities, but in the Midlands and North it is impossible to ensure a crop of fruit with such means, and rollers and blinds ought to be provided, to be let down at night and during cold storms of hail or snow during the day. In the South we have generally been able to obtain crops by the use of netting, but Spruce branches, portions of Laurels and other evergreens have also proved useful.

PLANTING SMALL FRUITS.—Young plants of Gooseberries and Currants raised from cuttings a year ago may be moved into permanent quarters now. If planted 5ft or 6ft apart it will be possible to crop the ground between with summer crops for a year or two. Suckers of Raspberries may be taken off and planted in rows or clumps; if in rows these should be 5ft apart, and the plants a foot asunder—clumps ought to be from 4ft to 6ft apart.

FIGS.—The protection for these may now be dispensed with, and the trees be pruned and fastened to the walls or trellis. As the Fig bears on the young wood, as much as possible of this should be retained without crowding, and the old bearing wood should be cut away. Aim at having plenty of new growth disposed evenly at about 6in apart.—J. W., Newent, Glos.

Fruit Forcing.

VINES: EYES AND CUT-BACKS.—Eyes may now be inserted, using pots, pans, or pieces of turf. Select firm, well-ripened wood, filling the pot or pan with sound friable loam, inserting the buds with a pinch of silver sand about half an inch beneath the surface, plunging the pots in a bottom heat of 80deg. Cut-backs should be placed in a house where they will have a temperature of 60deg to 65deg at night, and 70deg to 75deg by day. When they have started into growth, and have made shoots about 2in long, turn them out of the pots, remove the loose soil and return to the same size of pot, using good friable loam, providing a moist and rather close atmosphere until they are re-established, when they should have a position near the glass, so as to insure sturdy, short-jointed thoroughly solidified growth.

EARLY HOUSE.—The Vines in flower must have a temperature of 65deg to 70deg at night, 5deg less on cold nights, and Muscats 70deg to 75deg, rising 5deg to 10deg by day with gleams of sunshine. Keep the atmosphere somewhat drier by free ventilation, leaving a little on at night, yet a genial condition of the atmosphere must be maintained by sprinkling the floor twice a day during bright weather. Any shy-setting varieties may have the pollen distributed by means of a camel's-hair brush. Stop the laterals at the first leaf, and keep those pinched to one leaf throughout the season, but growths beyond the bunch may be allowed to make two or more joints, provided there is space for the full exposure of foliage to light and air. Avoid overcrowding the foliage. It is better to reduce the laterals than retain them to the extent of crowding, retaining fruit in proportion to the amount of foliage. Heavily cropped Vines make correspondingly little foliage, and the Grapes frequently do not colour because there is not sufficient stored matter for conversion at the time of ripening into the

A DECEMBER MELON.—A perfectly finished ripe Melon was cut on December 5 in the garden of Onslow Hall, Shrewsbury.

essential purple or gold colour. Reduce the crop when necessary so as to have some growth in the laterals, thus keeping the roots active, and thereby maintaining a good supply of nutriment judiciously applied as top-dressings or in liquid form.

VINES STARTED AT THE NEW YEAR.—The Vines are in leaf and showing for fruit, but let this be clearly visible before disbudding, removing the weak and least promising growths in the first instance, then give further attention when it is seen which shoots are likely to afford the best bunches. Tie the shoots down carefully, not being in a hurry, but the points must not be allowed to touch the glass. Avoid crowding by leaving those growths only that can have full exposure to light, stopping the bearing shoots when two joints are made beyond the stem for fruit, and the leaf at the joint is the size of a halfpenny. If the space is small, stop one joint beyond the bunch, pinching the laterals at the first leaf, and so on as made. Where there is room the bearing shoots may have three or four leaves beyond the bunch. The better foliage a shoot has the finer will be the Grapes. Laterals below the bunch may be removed where the space is limited, except from the two lowest leaves, pinching them at every joint. The great point is to secure well-developed leaves fully exposed to light. Vines to afford Grapes in July and August must now be started.

LATE HOUSES.—The Vines being cleared of Grapes early in January, the border top-dressed, and everything then put straight, a start may be made without much further delay, as it is essential that the Vines have the full benefit of the summer, and perfect their crops not later than the middle of September. Keep strong rods in a horizontal position, and insure an even heat by sprinkling them occasionally. Let the temperature be kept at 50deg to 55deg at night and on dull days until the buds move, then allow 5deg to 10deg more by day, and an advance of 5deg or more from sun heat, but lose no opportunity of ventilating freely.

RIPE GRAPES.—Avoid fire heat as much as possible in the Grape room, admitting air to prevent an accumulation of moisture, replenishing the latter with clear, soft water as required. An equable temperature of 45deg is most suitable.

NEW BORDERS.—The compost for new or renovating old borders should be prepared; the top 3in of a pasture rich, friable, and neither light nor heavy, is most suitable. Red soils are best, that is, those of the older new red sandstone, as they contain iron, which influences the health of the Vine, and the colour of Grapes. About twelve parts loam, two parts of lime rubble, a similar quantity of charred refuse, termed wood ashes, one part fresh horse droppings, and one-tenth of a part each of crushed bones and soot, the bones by weight and the soot by measure, mixed, give the best results we have seen in Vines as regards weight of Grapes, their finish and value, for both home use and market.

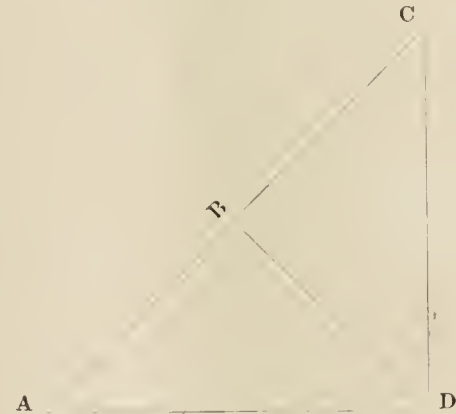
PROVIDE A FOOT OF DRAINAGE rough at the bottom and road metal size at the top, placing on a couple of inches thickness of clean (free from pieces of wood) old mortar rubbish, and take care to have drains under for carrying off superfluous water. A width of 4ft to 6ft is ample to start with, and 2ft 6in depth of soil suits the strong sorts; including Muscats. The materials will settle into about 2ft depth, and the roots can be kept up by top-dressings. The proper or a good time to plant Vines is from the buds swelling to the shoots being an inch or two long, then shaking out and laying the roots out as straight as can be done without injury. Vines raised from eyes can be planted up to June, turf-raised being the best, but those in pits answer, only do not allow root-binding.—G. A., St. Albans, Herts.

The Flower Garden.

HARDY BORDER PLANTS.—During any favourable opportunity, lifting, dividing, and replanting of any strong-growing and hardy border plants may be carried on. It is best to lift the plants entirely out of the ground and prepare the position thoroughly by deep digging. Some fresh material such as loam, leaf soil, or decomposed manure should be added if required. Canterbury Bells, Sweet Williams, and Wallflowers may be transferred to fresh positions readily, though the majority of the latter, especially for flower beds, should be moved in autumn. Among the plants which may be improved by division and replanting are Violas, Phloxes, Heucheras, Iris germanica, Helianthus, Perennial Asters, Chrysanthemum maximum, double and single Pyrethrums, and Hemerocallis. In dividing the old clumps select the most vigorous portions for replanting.

BEDDING PLANTS FROM SEED.—Among the bedding plants which may be raised from seed, the following should be sown early in a brisk temperature to ensure good plants for placing out in May or June in permanent positions to flower. Lobelia, fibrous-rooted Begonias, Cannas, Acacia lophantha, Pentstemons, Verbenas, and Antirrhinums. The seed of Lobelia and Begonias is very fine, so care must be taken to sow it on

fine soil, in well-drained pans, in a temperature of 65deg. Antirrhinum seed is also small, but it will germinate well in a greenhouse temperature of 50deg. Cover these fine seeds with a very light covering of fine soil or sand. Pentstemons and Verbenas require a temperature of 65deg; Acacia lophantha and Eucalyptus citriodora 60deg to 65deg. The seeds of Cannas are very hard, and should be steeped for twenty-four hours previously in tepid water, then sowing in pots in a temperature of 80deg to 85deg. A general mixture of loam, leaf soil, and



sand will answer well for compost. It is too early to sow the majority of half-hardy annuals, which germinate readily in a greenhouse temperature, next month being early enough for them.

PROPAGATING BEDDING PLANTS FROM CUTTINGS.

—In a brisk, moist temperature a large number of useful plants for bedding may be propagated by cuttings obtained from old stock plants, lifted and potted in autumn. Lobelias can be easily propagated in this way, as well as by seed. Heliotropes, Ageratums, Alyssum variegata, Iresines and Mesembryanthemum cordifolium variegata, now that the stock plants are starting to grow in a little heat, may have the soft tops removed and be pricked closely together in boxes of sandy soil placed over a gentle hotbed. When these are rooted the tops may again be taken and inserted. The stock of bedding Geraniums may also be increased by cuttings inserted now in a warm greenhouse.

PLANTING BOX-EDGING.—In places where Box is grown to form the edging for garden paths, the present is a suitable time to plant a fresh edging, or to renew vacant places. Form a shallow trench 6in deep, and of a sufficient width at base to admit the roots easily. Portions of plants with roots attached should be used, planting them closely together, the tips 2in to 3in above the soil. Spread the roots out and cover with fine soil, and press firmly. For repairing, use larger divisions according to the size of the adjoining plants, and insert to correspond with them in height. If the edging has to be bought in from the nursery it may be useful to know that three yards of edging may be formed from a yard of plants.—E. D. S., Gravesend.

Areas of Glass Structures.

With the same width and the same pitch, span and lean-to roofs contain the same superficial areas, but not the same cubical contents. There is the same superficial area of roof in A C as in A B D, and the same ground space is covered, but the contents in the upper or roof portion of the span are only half that of the lean-to. One finds that though the matter may seem trifling, an error is often made in thinking that an 8ft sash span-roof has the same contents as a 16ft sash lean-to, both covering the same width at the base.

SUTTON'S FARMERS' YEAR-BOOK FOR 1904.—After the disastrous rainfall of 1903 it will interest agriculturists to have Messrs. Sutton's assurance that they are in a position to send out clovers, grasses, and pedigree root seeds quite up to their usual standard of quality and high germination. Clovers are again extremely deficient in quantity, and it is clear that pure samples from a reliable source will be more than usually important this year. On glancing through the pages of the Year-Book the striking reports of extraordinary crops of pedigree roots cannot fail to attract attention. Many of these crops were entered for the great prizes of the year, and the weights were therefore ascertained in the presence of competent judges. For the first time in this work there are illustrations from photographs reproduced in natural colours. One represents a hayfield, and another shows a huge stack of the famous Prizewinner Mangold, and the photographic appearance of the roots can be clearly distinguished. The third photograph shows a field of the well-known Magnum Bonum Swede, with pulled roots in the foreground.

The Weather.

Weather in South Perthshire.

The latter half of January was marked by the absence of frost, some boisterous nights, a good deal of dull and drizzly weather, and some days unseasonably mild and springlike. Among the last the 23rd and the 30th ult. are noteworthy. In the afternoon of Sunday frost set in, and 6deg were registered during the evening, with dense rime, but thaw supervened, and Monday was a dull, calm day with drizzly showers.—B. D., S. Perthshire.

Sussex Weather.

The total rainfall at Abbots Leigh, Hayward's Heath, for January was 5.16in (the wettest January in our record of twenty-three years), and is 2.98in above the average. The heaviest fall was 0.96in on the 30th; rain fell on twenty-two days. The maximum temperature was 50deg on the 13th, the minimum 20deg on the 1st; mean maximum, 43.08deg; mean minimum, 32.25deg; mean temperature, 37.66deg, which is 2.33deg below the average of fifteen years. An extremely variable month—slight frosts (32deg or below it on nineteen mornings), wet stormy days, a few fine bright ones, and a few foggy mornings. On the night of the 13th quite a heavy thunderstorm passed over here from west to east. During the last six days of the month we had a rainfall of 3.15in, and strange to say, two of those days were fine and bright.—R. I.

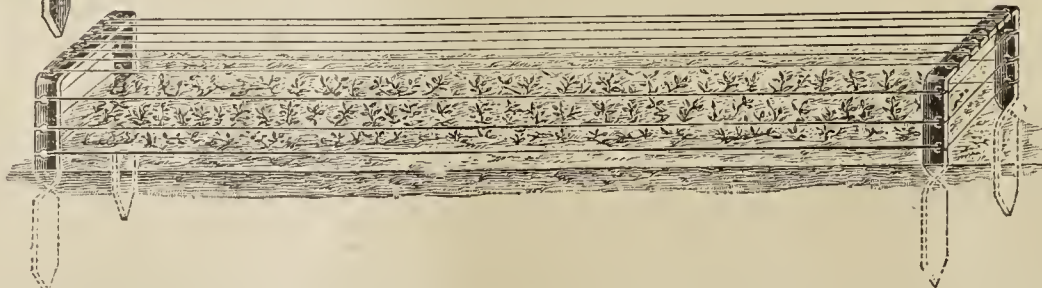
January Weather at Belvoir Castle.

The prevailing direction of the wind was south, total thirteen days. The total rainfall was 2.23in; this fell on twenty-one days, and is 0.45in above the average; the greatest daily fall was 0.75in (snow and rain) on the 31st. Barometer (corrected and reduced): Highest reading, 30.777in on the 22nd at 9 a.m.; lowest reading, 28.847in on the 14th at 9 a.m.; mean of 9 a.m. and 9 p.m. readings, 29.906in. Thermometer: Highest in the shade, 54deg on the 13th; lowest, 23deg on the 22nd; mean of daily maxima, 43.38deg; mean of daily minima, 32.00deg; mean temperature of the month, 37.69deg, which is 0.72in above the average; lowest on the grass, 19deg on the 22nd; highest in the sun, 87deg on the 13th; mean temperature of the earth at 3ft, 39.67deg. Total sunshine, 55 hours 30 minutes, which is nearly four hours below the average; there were thirteen sunless days.—W. H. DIVERS.

Trade Notes.

A Pca and Seedling Protector.

The illustration may be said to speak for itself. The protectors consist of two standards. These are made of galvanised steel, with twisted feet, which make them very rigid. The standards are provided with slot holes through which the black thread (greatly disliked by birds) passes, covering top, sides, and ends of rows, thus effectually protecting the seeds, culinary and Sweet Peas, small growing plants and vegetables, from the



ravages of birds. Instructions for fixing: Place the standards in ground (as sketched), and pass the thread through slot holes at top, sides, and ends. For rows over 30ft long an intermediate standard is recommended. The patentee is Mr. A. S. Corbett, Wellington, Shropshire.

Messrs. Carter & Co.

Messrs. James Carter and Co., seedsmen, of High Holborn, are shortly to open a City shop. This will be situated at the Cannon Street end of Queen Victoria Street, facing the Metropolitan Railway Company's station. The shop will be in telephonic communication with their Forest Hill Nursery.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

PEACH TREES DROPPING THEIR BLOSSOM BUDS (Perplexed).—The roots you submitted for inspection were found for the most part dead, and in some cases clothed with the mycelium of some fungus; but whether this was cause or consequence we are not able to determine definitely. It, however, bears a close resemblance to that found on the roots of Portugal Laurels and other species of the genus *Cerasus*, also *Prunus*, and is an assumed cause of "silver leaf," the fungus appearing on the dead roots of plants or trees that succumbed being that known as *Stereum purpureum*. There was, however, no fruits of this, or other fungus, in your specimens, and it is doubtful if this species leads other than a saprophytic existence, though it is not uncommon to find the fungus developed freely on the dead bark of many trees that have been killed by attack of some fungus on the roots or branches. Recently Professor Percival has conducted some experiments which he considers will demonstrate that the disease is caused by a wound parasite. We, however, are sceptical as to whether the *Stereum* is the cause of the "silver leaf," especially as fungus developed on the leaves of affected trees belongs to the *Ascomycetes*. Whether the white fungus is cause or consequence of the dead roots, it is certain that blossom bud dropping occurs where the roots are perfectly healthy, and we are not aware that loss of roots causes the buds to drop; indeed, lifting, which means curtailment of the roots, is the best known preventive of trees casting their blossom buds. The roots, nevertheless, are dead and covered externally with the white mycelium of some fungus, but there are no threads of this in the tissues that would indicate its parasitic nature. The loss of roots is probably due to other causes, such as the soil being of a heavy, vegetable character, as it was taken from a low-lying meadow when making a pond, and probably has settled into a close, sodden, and sour mass, being deficient of calcareous matter to keep it sweet, and of gritty material to ensure the access of air for oxidation. In such circumstances we have known a dressing of air-slaked lime, applied at the rate of $\frac{1}{2}$ wt. per rod ($30\frac{1}{4}$ square yards) to the surface, and left there, have a good effect. We would, however, advise lifting the trees when the leaves give indications of falling, then, cutting away all the dead roots, relay those left in fresh compost near the surface. The keeping of plants in Peach houses is a very bad practice, as the trees are deprived of the rest essential to their well-doing. There is a great difference in varieties as to liability to cast the buds, and most commonly arises from imperfect bud formation, the causes for which are very little understood, though possibly from defective nutrition in some respect. As before stated, we have found lifting the best preventive.

The bud dropping is a perennial question of discussion.

SULPHIDE OF POTASSIUM BECOME CLEAR—RECIPE FOR SOLUTION TO DESTROY MILDEW (G. D.).—The cause of the solution becoming clear is chemical change, the sulphide which imparts the milky appearance to water disappearing, or the solution becoming quite clear in a few days, and also losing the smell. It is of no use for spraying after going clear. For spraying

generally, particularly for mildew, ammoniated carbonate of copper solution is very effective and clear. Water 4galls, carbonate of copper $\frac{1}{4}$ oz., carbonate of ammonia $1\frac{1}{4}$ oz. Mix the carbonate of copper and the carbonate of ammonia, and dissolve it in about half a pint of hot water. When thoroughly dissolved, add the 4galls of cold water, and stirred, the solution is ready for use.

BOOK ON THE CULTURE OF VEGETABLES, FLOWERS, &c. (C. D.).—"Garden Flowers and Plants," "Greenhouse and Window Plants," and "Vegetable Culture," price 1s. each, and published by Messrs. Macmillan and Co., London, would probably suit you, as they are chiefly intended for amateurs.

EXPERIMENTS WITH POTATOES (T. Redington).—Many thanks, and we will look into the report. There seems to be scope for more work of the kind.

QUESTION FOR "W. R. RAILLEM."—Can your correspondent say whether, in the event of Briars not taking the first time budded, they will, if allowed to grow on, be suitable to bud again?—BEGINNER.

"THE GARDENER'S ASSISTANT" (J. P.).—The new edition of this work is published in six volumes at 8s. each, or it can be paid for by instalments. Apply to the Gresham Publishing Company, 25, Faringdon Avenue, London, E.C.

CHEMICAL MANURES (W. A.).—Your samples were submitted to one experienced, who has handled many chemical fertilisers, but his answer is as follows: "Regret to say I cannot make anything of the five samples of artificial or chemical manures, there not being any letter relating to them, and only analysis, in the absence of particulars, would be of any use. Indeed, I do not know what is required in respect of them." Many of our correspondents are too indefinite.

NAMES OF PLANTS.—*Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number.* (E. M.).—1, 2, 3, *Picea orientalis*; 4, *P. excelsa*; 5, *Abies firma*; 6, *A. Nordmanniana*. (S. P.).—*Cunninghamia sinensis*; *Erica carnea*. (F. T.).—1, *Iris reticulata histrioides*; 2, *I. Danfordiae*. (A. J.).—Hybrid *Dendrobiums*, and we would ask you to consult an expert who may have a large collection to compare by.

Trade Catalogues Received.

Chas. P. Kinnell and Co., Ltd., Heating Engineers, 65 and 65a, Southwark Street, London, S.E.—*New Catalogue.*

Laxton Bros., Bedford.—*Seeds.*

Sutton and Sons, Reading.—*Farmers' Year Book.*

The Bee-keeper.

Stewarton Hives.

I have again to thank "E. E." for his valuable information regarding the advantages of these hives, which must, I am sure, be of much service to beginners. I think my difficulties are now overcome, save with the exception of (1) When is the earliest possible time I may put on the first additional body box? (2) Even giving the bees more room, is there not still a possibility of a queen being hatched, and therefore causing swarming? What then? The super, I suppose, need not be placed on hive till honey flow comes on.

I have at present a super which was at last season's Heather, but owing to bad weather the bees were unable to complete, only two middle combs being partly filled up, but all other combs drawn out. I have not damaged this, knowing that in some way it would be of much service to the bees in the spring and early summer. Will "E. E." kindly say how I may treat this super to benefit both the bees and myself? It is surprising to me that "E. E." has not advocated these Stewarton hives before seeing he has such a good opinion of them. Why has he given us so much literature on the bar-frames and nothing on these paying Stewartons?—HEXAGONAL.

Covent Garden Market.—February 10th.

Average Wholesale Prices.—Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Jerusalem, sieve...	1 0	to 1 3	Onions, per case ...	6 0	to 6 6
Asparagus, Sprue, bundle	0 10	0 0	" per bag ...	4 0	6 6
" Paris Green...	1 6	6 0	" picklers, sieve	3 0	5 0
" English, bun.	6 0	0 0	" English, cwt.	7 6	0 0
Beans, dwarf, per lb...	2 6	3 0	Parsley, doz. bnchs.	1 6	2 0
" Madeira, basket...	1 6	2 0	" sieve...	0 6	0 0
Beetroots, per bushel...	2 6	3 6	Parsnips, per bag	2 0	2 6
Brussels Sprouts, sieve	1 6	2 9	Potatoes, per ton...	80 0	120 0
Cabbages, tally ...	2 0	3 6	" New Teneriffe,		
Carrots, doz. bun.	2 0	3 6	per cwt. ...	12 0	14 0
" per bag ...	2 6	4 0	Radishes, doz. bun.	0 9	1 0
Cauliflowers, doz.	1 6	2 6	Rhubarb, per doz.	0 9	1 0
Celery, per doz. bun.	10 0	15 0	Salad, small, pun., doz.	0 6	1 0
Cress, per doz. pun.	0 9	1 0	Savoy, tally ...	3 0	4 0
Cucumbers, doz.	7 0	10 0	Seakale, per doz...	10 0	14 0
Endive, per doz.	1 6	0 0	Shallots, per lb.	0 1½	0 2
Garlic, per lb.	0 2	0 3	Spinach, per bush.	3 0	3 6
Horseradish, foreign,			Tomatoes, English, doz. lb.	4 0	7 0
per bun. ...	1 3	1 6	" Canary Deep, lb.	3 6	4 6
Leeks, per doz. bun.	1 0	1 6	Turnips, doz. bun.	1 6	2 0
Lettuces, Cabbage, doz.	1 0	1 3	" per bag ...	2 0	2 6
Mushrooms, house, lb.	1 0	1 6	Watercress, per dozen		
			bunches ...	0 4	0 8

Average Wholesale Prices.—Fruit.

	s. d.	s. d.		s. d.	s. d.
American Limes, 400-			Grapes, Muscats, A., lb.	6 0	to 8 0
50 in case ...	7 0	to 9 0	" " B., lb.	2 0	3 0
Apples, American, brl.	14 0	0 0	" Canon Hall, A., lb.	2 0	8 0
" Californian, case	7 6	14 0	" Gros Colman, A., lb.	1 6	3 0
Bananas, bunch ...	7 0	12 0	Lemons, per case...	8 6	10 0
Chestnuts, bag ...	19 0	0 0	Lyches, box...	1 2	0 0
Cobnuts, per lb.	0 7½	0 8	Oranges, per case...	5 0	17 0
Cranberries, per case	10 6	13 0	Pears, per case ...	14 6	0 0
Figs, per box ...	0 10	1 0	" stewing, ½-sieve	9 0	11 0
Grapes, Alicante, lb.	1 0	2 6	Pines, each ...	2 0	5 0
" in barrel...	18 0	0 0	Strawberries, lb.	10 0	15 0

Average Wholesale Prices.—Plants in Pots

Most of the undermentioned plants are sold in 48 and 32-sized pots

	s. d.	s. d.		s. d.	s. d.
Acacia Drummondii, dz	15 0	to 18 0	Ferns in var., per. doz.	4 0	to 30 0
Adiantums, per doz.	4 0	8 0	Ficus elastica, doz.	9 0	24 0
Aralias, per doz.	4 0	8 0	Genistas, doz.	6 0	10 0
Arbor Vitæ, per doz.	9 0	18 0	Hyacinths, Roman (48-		
Aspidistras, per doz.	18 0	36 0	pots), doz.	8 0	9 0
Aucubas, per doz.	4 0	8 0	Lycopodiums, per doz.	3 0	4 0
Azaleas, each...	0 6	3 6	Lily of the Valley, doz.	9 0	24 0
Begonia, per doz...	8 0	18 0	Marguerites, white "	4 0	8 0
" Gloire de Lor-			Orange Trees, each	2 6	10 6
rairie, per doz.	8 0	24 0	Palms, var., each	3 0	20 0
Callas, per doz.	1 0	12 0	Poinsettias, per doz...	8 0	12 0
Chrysanthemum, doz.	6 0	12 0	Primulas, per doz.	4 0	6 0
Coleuses, per doz.	4 0	5 0	Pteris tremula, per doz.	4 0	8 0
Crotons, per. doz.	12 0	24 0	" Wimsetti "	4 0	8 0
Cyclameus, per doz.	10 0	30 0	" major "	4 0	6 0
Cyperus, per doz...	3 0	4 0	Solanums	4 0	6 0
Daffodils, per doz.	6 0	8 0	Spiræas, doz.	6 0	9 0
Dracænas, var., doz.	12 0	48 0	Tulips, red, doz. roots.	1 0	0 0
Ericas, per doz.	8 0	18 0	" yellow, doz. roots.	1 6	0 0
Euonymus, vars., doz.	4 0	6 0			

Average Wholesale Prices.—Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Anemones, doz. bun.	1 6	to 2 6	Mimosa (Acacia), per		
Azaleas, per bun...	1 0	2 0	bun. ...	0 9	to 1 0
Bouvardias, per bun.	0 4	0 6	Narcissus, doz. bun.	3 0	4 0
Callas, per dozen.	4 0	6 0	" Soleil d'Or, per doz.	3 0	4 0
Camellias, box ...	1 6	2 6	Orchids, various, doz.	3 0	12 0
Carnations, per doz.	1 6	4 0	" Odontoglossums,	2 6	3 0
Chrysanthemums—			" Cypripedium in-		
doz. bunches ...	6 0	24 0	signe, per doz.	1 6	3 6
Daffodils, bunch...	2 6	8 0	Pelargoniums, zonal,		
Eucharis, per. doz.	3 0	4 0	doz. bun...	6 0	8 0
Ferns—Asparagus, bun.	1 0	2 6	Poinsettias, bun...	0 10	1 0
French, doz. bunches	0 4	0 6	Roman Hyacinths, per		
Maidenhair, doz. bun.	4 0	6 0	bunch ...	0 6	1 0
Free-sia, per doz.	1 6	2 0	Roses, Mermet, per doz.	3 0	6 0
Gardenias, box of 18-24			" Various, per bun.	0 6	1 6
blossoms ...	4 0	5 0	" White "	1 6	2 0
Lilac (French), bun.	2 6	3 6	" Pink "	1 0	2 0
Lilium longiflorum,			Smilax, per doz. trails	1 0	1 6
doz. blossoms	4 0	7 0	Snowdrops, doz.	1 0	1 6
" lancifolium "	1 6	3 0	Stephanotis, per doz...	1 6	3 0
" auratum "	2 6	4 0	Tuberose, strong, bun.	1 0	1 6
Lily of the Valley, per			doz.	0 6	0 9
doz. bun.	6 0	15 0	Tulips, doz. bunches	6 0	12 0
Marguerites, yellow,			Violets, per doz. bun...	1 6	1 9
per doz. bun.	1 0	2 0	" Parma per bun.	3 0	4 0
Mignonette, per doz.	3 0	4 0			

Average Wholesale Prices.—Ferns, Foliage, Moss.

	s. d.	s. d.		s. d.	s. d.
Asparagus, long, bnch.	2 0	to 2 6	Ivy leaves, doz. bun...	1 6	to 0 0
" medium, bunch ...	1 3	1 6	Myrtle, large French,		
" short, per doz. bun.	6 0	7 0	per doz. bun. ...	1 0	0 0
" Sprengeri, dz. bun.	9 0	18 0	" small English, per		
Smilax, long, doz. trails	1 0	1 6	doz. bun...	6 0	0 0
Maidenhair, best, per			Moss, natural green, per		
doz. bnchs.	0 0	6 0	gross bun.	6 0	0 0
Berberis, per doz. bun.	0 0	0 0	" Liehen, full size		
Croton foliage, various,			boxes, per box ...	1 0	0 0
per doz. bun...	9 0	12 0			

Men Who Build Up Science.

Gardeners have to turn their hands to very many undertakings by virtue of their standing in large private estates and establishments, and amongst other duties they oftentimes assume the rôle of minor meteorologists. How helpful their work might be if summarised, all who *think* will at once comprehend; and we learn from Mr. T. Challis, head gardener to the Earl of Pembroke, at Wilton House, Salisbury, that he is at present engaged on work of this kind. He is working through statistics from forty-two years' observations which he has kept at Wilton. The task is a great one for a single person, especially when so many other duties claim time and attention, and the preparation will entail some months of labour. The object is to deduce a reference of scientific value for private circulation, and Mr. Challis is undertaking the work at his employer's request. When will the Chiswick (and other) records be prepared in like form?



The Stale Furrow.

To the greater number of farmers this is an old and worn out question which they are quite satisfied about; but so many people have been invited recently to take a part in arable cultivation, and have accepted the invitations, that it is necessary to reiterate in their interests some of the old formulas. We are being told in the interests of people who are interested in motor cultivators that the old idea of the stale furrow is a thing of the past. Well! if the motor will do all that the spade has done we do not deny it; but there is the rub. The motor cultivator will only do the same work as horses, but under different conditions, the whole point being the thorough breaking up of the yearling or two-year-old sod so as to produce and allow for a period of disintegration before the seed or tuber is introduced. This is the point! The land which has been under seeds for one or more years must be consolidated before being sown with a corn crop.

In this connection we remark that Professor Wrightson has recently undergone some criticism for advising people to follow the old system and provide for a few weeks' interval between ploughing and sowing land which has just been under Clover. One of the opponents of the stale furrow writes to the "Agricultural Gazette" from a street in Edinburgh, and a perusal of his letter gives us the impression that he is more interested in the motor industry than in farming, except in so far as the latter may be made a medium for the exploitation of the former.

We will quote one sentence from his letter: "One motorman can work five, ten, or twenty times more acres than a teamster can do in a day. The motorman can, therefore, wait for the right time to cultivate, which he finds is also the right time to seed, so he cultivates and seeds at the same time." This all sounds beautifully convenient, and is a very powerful argument in favour of motor cultivation if it were true that the right time to cultivate is also the right time to seed; but it is not. We shall not attempt to argue that a good crop of wheat has never been grown by sowing immediately after the plough, for such a contention would deny the usefulness of the press drill. There are some staples of heavy soil which are very difficult to sow, except under such favourable weather conditions as seldom occur, and on such soils the press drill is invaluable, and by its means the land is ploughed and sown in one day. But this ploughing and sowing invariably takes place early in the season, and this early sowing has a most beneficial effect on the vigour and healthiness of the crop.

It seems that a Mr. Woodhouse has grown wheat successfully on strong land by ploughing and drilling immediately afterwards. However, one swallow does not make a summer, and we would strongly warn farmers against following his example, and especially on light and thin soils. We entirely agree with Professor Wrightson when he says: "We cannot ignore the soundness of old practice in insisting upon the importance of getting up clover lairs early." Our own thirty-five years' experience is overwhelmingly in favour of early ploughing. We have several times seen ploughing commenced in July or early August, a small portion of the field only being turned over then, and the work completed two months later. The results have always been the same; a fine full plant and an excellent crop on the early ploughed strips, and comparative failure on the remainder of the field. The appearance of the latter in May was remarkable, the wheat on the early ploughed portion being so much forwarder and stronger than that on the other portions as to give a stranger the impression that it had been sown a month earlier and not upon the same day.

Professor Wrightson sets the value of the eatage of clover by ewes against the value of a stale furrow for wheat, and estimates the latter at a sack an acre. We think this is a low estimate, and should suggest twice as

much. He also advises resort to a crop of oats in preference to wheat sown on a green furrow. We entirely agree with him here also, and in cases where grazing for sheep is such an important matter, especially on arable farms which are short of grass land, a regular system of keeping the old lea unploughed until January may be most desirable. But it must not be supposed that we are advocating for the oat crop what we deny to wheat. It is every bit as necessary to plough lea early for oats or barley as it is for wheat. Oats and barley like a free seed bed, but they also like it fairly firm, and they do not flourish in green sod. In their case it is time for the sod to decay, and the formation of humus which is required. Therefore, we say keep your seeds up for grazing until January, then plough as soon as convenient so as to give an interval of six or eight weeks before drilling.

We referred above to motor cultivation. We have no objection to it as such, we only object to the idea that by using it we can make wheat grow and do well in about five minutes. We believe that motors will be the agricultural traction of the future. More than that, we think that the breaking up of lea land by motor cultivation would constitute an excellent preparation for wheat sowing, but not on the same day. It is possible that the land would more quickly acquire firmness after cultivation than it would after ploughing, and therefore a less period of waiting might be required. That there is a doubt as to this is shown, however, by the uselessness of digging ploughs in preparing lea for wheat. There are hundreds of farmers who keep the old-fashioned ploughs for that purpose almost solely, and they would not multiply their implements without good reason. It must be remembered that the stale furrow question only applies to lea and not to land which has been under Turnips, Mangolds, Potatoes, &c.

Work on the Home Farm.

The past week has been a most disappointing one. The land was getting at last into a fairly dry condition, we had three days with both sun and wind, and all was promising when once again down came the rain, which has been almost continuous for other three days, and now we are as badly off as ever. Speaking to a strong-land farmer, we found him most despondent. It is, as he said, heartbreaking. It is bad for men as well as farmers, for nearly all the usual employments for wet days have been used up, and there is no shelter work for the daily labourers.

We want to thresh again, but the weather will not allow of it. There is no corn in the granary waiting for winnowing, no sacks to mend, and so on.

The Potato trade is very slow, and not many are being moved. Even Northern Stars are a drug, for at a sale last week they fell to 24s. per stone. Evergoods for seed are £8, Empress Queen £5 10s.; King Edward VII., £12 10s., and so on; but there are few buyers yet. A great number of farmers will stick to Up-to-Date, in spite of last season's disasters.

Barley is as poor a trade as ever, and the majority of samples fall below 24s. A great proportion of the barley left in stack is unsaleable except for grinding purposes. There is more demand for oats, and a prospect of an advance. We should advise the threshing of barley and the reservation of oats until summer. The turnip sheep are in a dreadful state, and the ewes are on grass once more. The hogs are on swedes and walking over them faster than we like, so we are giving a little hay to make the swedes go further. We have no lambs yet, as we do not commence lambing early, but we see a few about in the neighbourhood. Early lambs are the rule now rather than the exception. Most farmers breed a few.

There is a great scarcity of milk cows just now, and they are very dear. As this is a season when they are becoming more plentiful, and farmers require them to help the shepherd with his lamb-rearing, the scarcity is a little awkward. Perhaps it is but a temporary scarcity, and March may see a change. Clover seeds are likely to be dearer than of late, and farmers who buy early will do well. Prices are likely to rise as the spring advances. We understand that a good deal of seed was spoilt by bad weather.

Pigs are now very plentiful. Farmers have been breeding them largely, and litters are very numerous.

Potato Cultivation by Electricity.

Experiments have been made (says Dr. Griffiths) for the improvement of the Potato crop by distributing electricity through wires amongst the crops; and by this means the yield was increased 80 per cent. Electricity oxidises the free nitrogen in the soil and produces nitrates, and it may stimulate the roots to greater activity.

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Journal of Horticulture.

THURSDAY, FEBRUARY 18, 1904.

Horticulture and Science.

SCARCELY the need for a scientific department, in addition to those already managed by the Royal Horticultural Society, is being recognised in the minds of Fellows. The mention of science is sufficient to cause numbers of somewhat biassed people to turn with scorn from any propositions made toward this achievement. With these we plead for a little greater breadth of view, a more open mind, and, if possible, support in this time of need. But let it be immediately understood that we desire no happy hunting ground for professors with pet theories, but equipment for the scientific solution of difficulties which continually and unceasingly arise around the operations of practical horticulturists.

These pages have made modest and respectful appeals to the council of the Royal Horticultural Society on previous occasions for the institution of a museum adapted to the needs of gardeners and visitors to the fortnightly exhibitions in Westminster, in which collections of typical fruits, of garden insects, and other things could be set on view. The suggestions were made when the plans for the Horticultural Hall were still undecided,* but lack of confidence in the strength of the society, and in its permanent stability, would seem to be the only reasons why a museum was not included as an integral part of that much criticised edifice.

Though there are numbers who try to regard the Royal Horticultural Society as localised to London, the patriotic horticulturist will endeavour on all occasions to assert for it a leading power as his one and only central body for the British Islands, knowing well that centralisation in this instance furnishes the craft and practitioners of horticulture with

* See *Journal of Horticulture* for December 4, 1902.

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an authoritative board speaking with one voice for the gardeners of the nation.

Through the mind's eye we see twice a score of little garden patches in the counties of this land, each with a superintendent engrossed in his own line of investigation, and much of what these county instructors undertake is work of scientific value, but is largely lost for want of a central channel to make it known. A Scientific Committee already exists in the Royal Horticultural Society to advise its Fellows in matters where science alone can help. It is but a dream, yet the day may dawn when delegates shall come to London from Cornwall and Cromarty to discuss problems in scientific horticulture.

In the United States, where the people are practical but not poetical, an association for the advancement of horticultural science has already been established. The membership is composed of the horticulturists of the experiment stations throughout the Union, and this association holds meetings in connection with those of some kindred society. The one prime object is to more fully establish horticulture on a scientific basis; and from the recent programme of the first annual convention, the members have demonstrated that matters for useful investigation are more numerous than are men for the work.

The council of the Royal Horticultural Society have not, so far as we are aware, solicited a monetary grant from the Board of Agriculture. If the Board of Agriculture can grant sums of £1,000 to what are practically private agricultural colleges, in return for making trials which may be suggested by the Board, surely the Royal Horticultural Society, as the largest horticultural association in Great Britain, has an excellent right to a portion of the State money. The sum of £1,000 (or less) for one year would equip the necessary laboratory and office, and the work could be started at once. What the nature of the work might be would entirely depend upon resources and the number of assistants the director might have. Whatever was undertaken would have for its aim the ameliorating of the gardeners' calling, and the lessening of losses so numerous in gardening. The meteorological statistics kept at Chiswick for forty years and more could be summarised, and thus add a quota to the building up of a science of meteorology. That the work is not insuperable we have evidence in what Mr. Challis is now engaged on at Wilton—the deducing of principles from records kept by him for forty-two years.

But greater work than this would lie in other directions: as experimenting with plants to obtain disease resisters, on similar lines to the work of Professor Marshall Ward and his assistants at Cambridge and elsewhere; the testing of manures and insecticides on crops, and furnishing official reports on them; the further investigation of the Mendelian law in heredity; to the end that useable, reliable principles be adduced; and generally to keep in touch with discoveries abroad or suggestions at home, and to prove the one and try the other ere stating their practical value to the gardeners of our land.

Specialisation of Parasitism.

At the meeting of the Linnean Society held recently Mr. E. S. Salmon read a paper entitled, "Further Researches on the Specialisation of Parasitism in the Erysiphaceæ," and this was illustrated by diagrams thrown on a screen. Mr. Salmon had adopted a novel and ingenious method of illustrating his somewhat complicated series of experiments and results. What he had done was to sow the spores of *Erysiphe arundinacea* on the leaves of a number of species of *Bromus*, and had recorded the results. It was shown that some species were immune; others were resistive to a large extent; while a certain number were infected every time. In some cases a resistive *Bromus* became a prey to a small extent to spores that had previously affected a neighbouring species. These were termed breeding species of *Bromus*. It is thought that resistive races might be reared from data obtained through such experiments. An interesting feature was referred to, where the larvæ of a dipterous insect of the Hessian fly genus had been found feeding on the mycelium of the *Erysiphe*, and Prof. Marshall Ward, who spoke on the paper, suggested that the fly of this species might possibly puncture the *Bromus* foliage, and thereby make an opening for infection, which might not otherwise occur.

Nature-Study in Schools.

Now that a return to more rational methods in education has become possible in elementary schools, the Board of Education is very wisely encouraging the study of Nature in such schools. From the report of the very successful conference recently held at Beverley it seems that the difficulty at present is knowing how to set about the work in the most satisfactory way. Probably had time allowed, valuable suggestions would have come from some of the teachers present, many of whom doubtless have long done much work on the lines suggested by some of the speakers.

This article embodies the views of one who has taught—or rather along with his pupils has studied—Nature for many years. By the way, Nature-Study is not a subject to be taught as most other branches of learning are. Methods may be indicated, but in the study "the patient must minister to himself," and herein lies its great value in the school curriculum. I take it that the great object of Nature-Study in schools is the inculcation of a love of Nature and country life. If this be not attained, valuable as the mental training it affords may be, the chief end is lost. This being so, it is of the utmost importance that the subject be so presented to the children in a manner to attract and not repel, as in the old days so many school subjects did. Granted a real love for Nature, keenness and accuracy of observation are easily instilled in the minds of the young.

Many speakers at Beverley seemed to put undue stress on the alleged fact that we are losing our powers as an observing people. It is a great question whether this is really so, or whether our powers are not in sympathy with the tendency of the age, simply becoming specialised; for it is a trite saying that one sees only what one has been trained—by some method or other—to see. Professor Miall instanced the case of so few persons having observed the number and colour of the funnels of an Atlantic liner; a matter of no moment. Had he examined the small boy on the details of the engines, or my lady on the details of her fellow-passengers' raiment, how different the results would have been. Keen, however, as the observing powers of childhood undoubtedly are in some directions, the child, as all teachers know, rarely distinguishes between what is essential and what is accidental and unimportant. Nature-Study is eminently useful in correcting this failing.

Now Nature-Study, to be of any value, must be the study of Nature and not the study of books of natural history with which the market at present is being flooded. Neither must it degenerate into a series of scientific object-lessons. We have long had excellent science teaching which has served its purpose in mental training, though not always begetting the love it should have done. How many young ladies have been "taught" botany in times past one hardly likes to estimate when one thinks how rare it is to find a lady who has thereby become a real lover of Nature. Indeed, the formidable nomenclature and dry detail has often had the opposite effect. As in the teaching of languages so in botany, the "grammar" has been taught before the pupil had any material needing use of grammar. It is a natural law of development that practice must come before theory, and empiricism before scientific method.

In endeavouring to inculcate a love of Nature the teacher should work on the boy's two innate instincts—the love of sport and the passion "to see wheelsh go wound." Buckland, a type of character which teachers should ever have in mind, traced his powers as a naturalist largely to being appointed rat-catcher at Winchester, and many other students of Nature date their infatuation for her from their bird-nesting days. Only in days—let us hope gone for ever—the instincts were not turned into the right channels, so that the typical Englishman remarks, "Something alive, kill it!" instinctively, instead of "Something alive, let us see how it works."

With regard to plants, it is certain that the ordinary country child has no idea they do "work" at all. Once get him interested in "the wheels" and his curiosity in the marvellous adaptations found in plant life is insatiable. I would therefore say let him see and study the plant as a whole, acting, living member of the vegetable world, if possible growing amongst its usual associations. Lead him to see why this has entire, that cut-up leaves; this gay, that inconspicuous flowers; this a climbing, that a prostrate

stem; why this leaf is hairy, that smooth; and let him never notice a characteristic without comparing it with similar parts of other plants, and trying to account for its presence. From such observations and deductions he may then be led to study the plant in greater and greater detail, until at last, though probably beyond his school days, he gets down to its anatomical structure. I emphasise this because there is a tendency to begin the study of plant life with the dissection of a bean—a method as sensible as beginning “the proper study of mankind” with a dissection of his arm or brain.

In elementary schools the greater part of Nature-Study should doubtless be confined to plants, insects, and birds. Insects—as for their arboreal ancestors—have an undoubted attraction for small boys, and as their capture appeals to his love of sport the study should certainly be encouraged and directed on right lines, great care being taken lest he should develop into a mere collector of butterflies and moths, against which Canon Nolloth lodged a timely protest. Rather encourage the boy to make a small collection of type insects illustrating the various orders, and comparing their different structure and habits. Especial attention should be given to the study of injurious insects, for where is the farmer who knows anything of their habits except at the time when they commit the actual damage? Only lately a farmer assured us the same fly attacked his Turnips and Mangolds.

I would not put much emphasis on the value of school gardens as aids to Nature-Study, unless, indeed, it were possible to have them in large towns where wild plants are unattainable. Taken as a whole, garden plants are much less interesting than their wild relatives, and there is no country school where abundant material for study is not available without recourse to the garden. Besides, in garden work one is tempted to forsake the study of Nature for the quest of the “big Gooseberry.”

In the matter of birds, not very much can be done in small schools. Birds are so difficult to make out, and so shy of approach, that it is only the commoner varieties that can be well studied. The children may, however, be led to collect evidence in favour of or against birds said to be inimical to the farmers' interests. The educational value of the study of birds' eggs is not very great, and probably the study of either eggs or nests is best discouraged, bearing in mind the uneradicated ancestral instincts still in the boys' organisation.

In one school where Nature-Study takes a prominent place in the curriculum the boys hold a natural history conversation class once a week. Each boy brings before the meeting any observations he may have made, and the others discuss the subjects brought forward. Were Professor Miall to be present at one of these classes he would probably see reason to modify his opinions as to the non-observing powers of the young rustic. The books in which the observations are recorded are a constant source of amusement to visitors, who would be still more amused to hear the observations stated in the vernacular.

To introduce Nature-Study as a new subject into schools the teachers themselves must first be interested, and the lines once indicated they will, as they have always done, rise to the occasion. Repayment for any trouble taken will be amply made in the greater interest added to country life, which, without some such zest, is dull indeed. The various county councils are preparing to give the teachers a lead if they have not already done so, and the magnificent attendance at the Beverley conference shows that the elementary teachers are prepared to throw themselves *con amore* into any scheme which they are convinced is for the benefit of the children under their charge.—H. S., Helmsley.

American People not Horticulturally Inclined.

At a recent meeting of the Boston (Mass.) Florists' Club Mr. Orpet referred to the wonderful up-growing of the spirit of horticulture in the United States in the last few years, and congratulated the gardening fraternity on the revival, which means so much for their welfare. The American people, he said, are not yet a horticulturally inclined race, but he believed the time would come when flowers and gardens would be appreciated there as abroad. He referred approvingly to the study of plant life in the public schools, and expressed his conviction that the more people take up horticulture as a hobby or pastime the happier they will be.

Professor Schlich on British Forestry.*

(Continued from page 91.)

OBJECTS OF MANAGEMENT.

The management of forests depends on the objects which it is proposed to realise. It rests with the proprietor, in so far as his choice is not limited by the laws of the country, to determine in each case what these objects shall be, and it then becomes the duty of the forester to see that they are realised to the fullest extent, and in the most economic manner. Here you have the fundamental principle in a nutshell. In these islands nearly the whole of the woodlands belong to private proprietors. They desire, in the majority of cases, to have the woods so managed that they either lend themselves to landscape beauty, or to the rearing of game, or to the production of a particular kind of produce required in the management of estates. Either one or more, or sometimes all these objects, have to be kept in view. Where this is the case, the economic working is sometimes altogether out of the question, or at any rate, considerably interfered with. And yet, even in such cases, the object of the proprietor may be realised, and the woods can be made to yield, if not a full, at any rate a fair return, while the proprietor must put down any deficiency in the return against his pleasure, or against shooting rents, or the benefits derived by the rest of the estate.

ECONOMIC FORESTRY.

Where, however, the manager is not hampered in this way, and where economic forestry is aimed at, as it would generally be in the case of extended afforestation of waste lands, the question of finance would stand in the foreground. The forester must decide what to plant, how to plant, and how to treat his woods, so as to realise the highest possible net returns. The answers to all these questions involve practically a treatise on silviculture and forest management, which your professor will no doubt propound to you. On this occasion I can only offer a few general remarks. The financial results may be said to depend chiefly on (1) the soil you have to deal with, (2) the average annual production of the several species, (3) the value per cubic foot of timber, (4) the cost of planting and subsequent treatment, (5) the degree to which the trees are exposed to injury, and last, but not least, the rate of interest on the money invested in forestry.

RATE OF INTEREST.

It has been said in public by an eminent authority “that no British landowner will invest money in forestry, unless he is assured of 4 per cent. on his money.” But, I say, is this reasonable? What other investment of equal security gives 4 per cent. in these days? Why should forestry be expected to give a higher per cent. than agriculture? Let us consider the case of Consols for a moment; they give nominally $2\frac{1}{2}$ per cent., but look at the ups and downs which they undergo. A few years ago they stood at 112, now they are quoted at 88, a fall which represents ten years' interest. Such fluctuations do not occur in forestry. Once that industry has been established on a safe basis, it yields a steady income, and the capital is safe from anything like the fluctuations to which Consols are subject. In my opinion, forestry, conducted on proper lines, offers an investment at least as safe as Consols, and it seems to me unreasonable to expect more than $2\frac{1}{2}$ per cent. from it. There are millions of acres in these islands fit for planting, which are valued at such a low rate, that they can be made, if put under forest, to yield steadily $2\frac{1}{2}$ per cent. and more. At the same time, I must lay stress on the fact that all forest operations must be conducted in a truly economic manner. Extravagance has no place in forestry, or in agriculture either.

SOIL.

In coming to the question of soil I desire to impress upon you this fundamental rule: “Never attempt to plant a species which is not thoroughly suited to the locality, that is to say, soil and climate.” Every disregard of this rule is likely to lead to financial loss. It is quite astonishing how often this rule is sinned against. Sometimes the planter has not sufficient understanding of what is the

* An address at the Royal Agricultural College, Cirencester, reprinted from the “North British Agriculturist.”

species most likely to thrive best in a given case. This shortcoming must be met by proper instruction, such as you will, henceforth, no doubt receive at this college. In other cases the planter has developed a fancy for a certain species, and he proceeds to plant it under all circumstances. This is a most disastrous failing, which the forester must combat with all his might. The subject must be approached with an open mind, and all personal fancies must be absolutely put on one side. No doubt the selection of the right species is a very difficult task, and the subject must be studied in detail. As a general proposition, it may be said that "heavy soils are better adapted for broad-leaved species, and lighter soils for conifers." This rule is, however, not without exception. Spruce, for instance, does very well on heavy soil. There is a medium class of soil, which I shall call loam, which practically suits any of our forest trees; in the same degree as you proceed to heavier soils, the Conifers retire, and vice versa. Again, some species, to do really well, require a fertile soil, like Sycamore, Ash, Oak, and Elm; others are somewhat less exacting, like Chestnut, Beech, and Silver Fir; next come Norway Maple, Lime, Alder, Larch, and Spruce; less exacting again Willows, Poplars, Birch, Weymouth Pine, Scotch and Austrian Pine. There are, of course, many other points to be considered, and the forester must make his choice accordingly.

(To be continued.)

Book Notices.

"LAWNS." By Sutton and Sons. Price 1s.—An admirable treatise on garden, tennis, bowling, croquet, putting, and cricket lawns. The soil and its preparation, the drainage of the land, weed seeds in soils, selection of seeds, quantity and sowing of seeds, mowing, rolling, watering, &c., are amongst the features of the book, which is also freely illustrated. It is a very handy and useful guide.

"PICTORIAL PRACTICAL CHRYSANTHEMUM CULTURE." By Walter P. Wright. (Cassell and Co., Limited). Price 1s.—This is the latest addition to the series already produced under the same authorship. It is "a plain guide, describing every branch of Chrysanthemum growing." The Rose and Chrysanthemum cultivators are certainly not forgotten by the publishers of books, for this season already we have noticed in these columns no less than five Chrysanthemum books, and probably as many on the Rose. The one now before us is well illustrated, and will be helpful.

"CHRYSANTHEMUMS AND HOW TO GROW THEM FOR EXHIBITION." By J. B. Wroe. (Collingridge, 148, Aldersgate Street, E.C.) Price 1s net.—This book is a second edition. It furnishes instructions on timing and stopping for northern and southern growers; gives selections of the best varieties of Japanese, incurved, Anemone, reflexed, and pompon varieties. The tables giving data about the stopping and timing of a large number of varieties are novel, but eminently useful. The book is illustrated.

"ROSES AND THEIR CULTIVATION." By T. W. Sanders. (Collingridge).—This book is in stiff green binding, and is freely illustrated by coloured pictures, half tone and "line" blocks. It begins by describing types of Roses—Rosa alba, the Ayrshire, the Austrian Briar, the Damask, and so on—giving short historical notices of each, and describing its season of bloom and the soil and kind of treatment it requires. Then follow chapters on the way to grow Roses, selections of Roses, manures, propagation, pests, calendar of operations, and a useful glossary of rosarians' terms. The book is very serviceable for young gardeners and amateurs beginning the study of Roses and their culture.

PUBLICATIONS RECEIVED.—The Orchid Review, February, 1904. Contents include a calendar of operations for the month; orchids in season; orchids twenty-five years ago; Vanda Hookeriana; Coelogyne Dayana; history of orchid cultivation; the genus Mystacidium, and many notes of interest. * * Royal Botanic Gardens, Kew. Bulletin of Miscellaneous Information. Contents: List of Staffs in Botanical Departments at home, and in India and the Colonies. Price 4d. * * Report of the Select Committee on Ventilation appointed by the House of Commons (Blue Book, 1903). London: Hickson, Ward, and Co., 15, Chiswell Street, E.C. Price 1s. * * Livres de Sciences (Books of Science). Catalogue général et bibliographique méthodique. Paris: J. B. Baillié et Fils, 19, Rue Hautefeuille. * * Gartenflora, February 1, containing coloured plate of Vriesia psittacina, Lindl., var. Morreniana, Morr. * * Le Moniteur d'Horticulture, February 10, containing plate of Violet Nouvelle Souvenir de Jules Joss (a large-flowered purple tinted variety).



Dendrobium Treacherianum.

At the present time there is a considerable demand for inconspicuous and also rare orchids. It must be conceded that the one we figure is not seen frequently, and when Sir Trevor Lawrence, Bart. (grower, Mr. W. H. White), staged plants of it at a Drill Hall meeting, great attention was directed to them. The colour of the sepals, petals, and front portion of the lip is rose, shading to crimson toward the throat and side lobes. Each raceme bears from seven to ten flowers.

Cultural Notes: Aërides, Vandas, Saccolabiums.

Most of the distichous-leaved orchids, such as Aërides, Vandas, and Saccolabiums, get bare of foliage at the base in course of time, and when in this condition they cannot be described as beautiful objects, especially when out of bloom. They may be much improved by lowering them in their pots or baskets, first cutting off the base of the stems, which will in many cases be dead. The addition of new sphagnum higher up the stems will cause the emission of young roots in plenty, and greatly enhance the beauty and health of the plants. Ample warmth, a little extra atmospheric moisture, and, if the weather is bright, a slight shade, are necessary to give the plants a chance of re-establishing themselves.

Then, many of the ordinary specimens not requiring such drastic treatment as the above, will be benefited by the removal of a little of the old decayed moss and the addition of new. Although it is usual in some collections to go through all this section at this time of year, it is not really good practice. The best method is to take each species, or group of species, and attend to them in order of rooting. Aërides odoratum and its varieties, A. Fieldingi, and Vanda suavis are among the earlier ones to commence rooting, Vanda cærulea occurring to mind as one that does not need attention until later.

All these plants will need great care in watering for some time yet, especially large, bulky specimens that have necessarily a good deal of moss about the roots. If this becomes overmoist the roots perish, this incidentally being one of the principal causes of the unsatisfactory state described above. It is yet too early to commence operations with the Phalænopses; not but that they often root early in the season, but a difficulty will be found in keeping up a suitable atmosphere afterwards, while in the neighbourhood of large towns the fog evil has yet to be feared.

Cattleya Trianae is one of the showiest and most popular species now in flower. If any signs of weakness or shrivelling of the pseudo-bulb takes place, the flowers must be removed and the roots afforded more water than they have lately been having. But this will only occur on weak or badly established specimens, healthy plants easily standing the strain of flowering. All the flowering specimens, whether of this species, C. Percivaliana, C. Mendeli, or others, should be grouped together in the coolest part of the house, or in the flowering house. A little shade should be provided, as when the sun bursts through after a dull time the delicate texture of the flowers renders them very liable to injury.—H. R. R.

Gadding and Gathering.

Messrs. Carter & Co.'s Primulas.

An annual visit to the Forest Hill nursery of Messrs. James Carter and Co. is always of interest, as they cultivate Chinese Primulas to the extent of between 6,000 and 7,000. The want of favourable weather has made it difficult for the growers to produce sturdy plants, and the pollenating of the flowers has been less satisfactory than they could have desired. There is, however, an excellent show of flowers, and Messrs. Carter have some really fine varieties. Particularly is this true of their Princess May, a variety with large and beautiful soft pink flowers—Apple blossom pink. Rose Queen is freer than the foregoing, but the colour of the flowers is paler, and it is not so sturdy. The former is, perhaps, more generally preferable. From pink to salmon pink is not a far cry, and in Prince of Wales we have a charming Primula of that shade. The flowers are semi-double, of good form and size, freely borne, and the robust foliage is of the "palm" type. Whites are represented by King Edward, which

was sent out this year, and is a double with heavily fringed corolla. In this respect it is very distinctive, and the flowers are large, well formed, and thrown well above the foliage. Holborn Queen (fern-leaved) is a good variety for continuous blooming, for it possesses the habit of throwing up tier after tier of its snowy blossoms. Fern-leaved Elaine was noticed to be particularly sturdy, with pure white blossoms of excellent form; it is certainly one of the best whites. And Elaine Improved must be referred to in terms of unqualified praise, for finer trusses of large, pure white flowers, plus a good vigorous habit, would be hard to find. It is a cross between one called the Bouquet (on account of the corollary growth of small foliage beneath the inflorescences) and the ordinary or original Elaine. Lastly amongst whites one must just name the double Snowflake, which was recommended for cutting purposes, as well as for use in the conservatory. It is rather a weak grower at the start, but later on it develops handsome plants, and two-years-old specimens are said to be better than the first year seedlings.

Coming to scarlets, the varieties of this colour are naturally limited, but Carter's Double Scarlet well deserves the name. It is a very thrifty grower, and furnishes a bright little subject for the present season of the year. Crimson King, a single, is also dwarf, sturdy, free, and intensely rich in colour. Towards the eye it gets dark blood-red, but the edges are livid scarlet. Even more floriferous, we should say, is Carter's Crimson, which is a well marked and commendable variety in more points than one.

Has the true blue still to be found? The growers and cross-breeders are working very close to the goal, and though Holborn Blue is really a lavender blue it is a delightful subject, and one we hope will be welcomed in gardens. Of course, there are other blues in the field, and the best will make its mark in time. Holborn Magenta furnishes yet another shade of colour, and this particular variety had been blooming for three or four weeks prior to February 4. Lilac Queen—which, however, is decidedly purplish-lilac—is a good semi-double flower, with heavy trusses of its very pleasing flowers. It is an excellent sort, and quite one of the best.

The variety named Stellate Pink is lilac-mauve as seen at Forest Hill, and a beautifully graceful subject for the floral decorator. It seemed to be such a kind as ladies would particularly delight in. And in conclusion one must not omit the sweet and warm-coloured Holborn Salmon, with trusses well thrown up, and Ruby, with very large flowers, heavy trusses, and a sturdy habit of growth. If we were left to choose eight they would be: Princess May, Prince of Wales, Elaine Improved, Lilac Queen, Holborn Blue, Holborn Salmon, Double Scarlet, and Rose Queen.

Primulas at Reading.

So far back as 1862 an award of merit was given to a garden variety of the Chinese Primrose shown by Messrs. F. and A. Smith, of Dulwich. The next award in sequence was also given by the Royal Horticultural Society (in 1869) to a single white with dark flower stems, and the first mention of blues is recorded for the year 1882, when a variety from the German type then introduced received a certificate. Since then very few certificates have been given, but Messrs. Sutton and Sons received an award of merit two years ago for their handsome Duchess. This and its forms are characterised by a bright colour-zone around the eye, while the flowers are large and bold.

The crosses made at Reading are effected and recorded with scientific accuracy, and the fact that Mr. W. Bateson, F.R.S., relies on the work here attempted is surely a great testimonial to the firm. For five years past Mr. Bateson has visited Reading, with book in hand, in order to further trace the problems of heredity as evidenced by these humble plants, to the end that the Mendelian hypothesis may be tested, and that laws may be deduced which will ultimately be of practical value to gardeners and cross-breeders. Mr. Bateson, by the way, is to read a paper on the subject of heredity to-night, at the Linnæan Society's meeting, Burlington House.

Coming to the Reading collection as it was a week ago, we find that enormous quantities are cultivated, and as all are secured in flower at one time, the display in the long ranges of recently erected houses is exceedingly rich and varied. Fully 13,000 plants are grown. It was pointed out in the issue for February 12 last year that there are six to eight different "types" of Primulas, the variations occurring (1) in the foliage, and (2) in the flowers; and some varieties, such as Snowdrift and Royal White, have a palm-leaved and a fern-leaved type. Altogether, the number of select varieties is from thirty-five to forty, but those who do not care for named kinds can obtain excellent mixed collections.

The Star Primulas will long remain favourites, because of their grace and floriferousness. Messrs. Sutton and Sons have varieties of this section in colours, carmine, pink, white, and blue, bearing such simple explanatory names as Carmine Star, Blue Star, Ruby Star, and so on. In time there are hopes of adding a soft cream yellow to the list. Quite the most popular white is the older White Star.

The same style of nomenclature is adhered to for the giant-

flowered kinds, that is, the strain of Chinese Primulas with the largest and finest flowers and trusses. The best of the selections here would be Giant Crimson, Giant Terracotta, Giant White, Giant Pink, Giant Pearl (one of the most reliable of all), Reading Blue, and Improved Reading Blue. There is a light, pretty blue, (a grey-blue) named Cambridge Blue, and also a Double Blue, which seemed a most satisfactory and handsome plant. But doubles are not confined to this colour; there are Double White, with dark leafstalks; Double Salmon, one of the sweetest and loveliest of all; and Improved Double Scarlet, a real crimson scarlet.

The Duchess has received such a call that large numbers of plants are cultivated, and it certainly deserves the recommendations we gave it on its first appearance.

So far we have not named Brilliant Rose, a bright magenta crimson, as it appeared; and Royal Queen, with soft shell pink flowers and fern-leaved type of foliage. This well deserves a special note, and the same applies to Pink Beauty, a double, with white ground splashed with salmon. These speckled doubles have been "thrown" by Double Scarlet. The latter, by the way, is the finest thing in scarlets.

In the foregoing, then, there are named the choicest of the Reading Primulas, and each has merits of its own. Whenever



Dendrobium Treacherianum.

possible, growers ought to pay a personal visit to the nurseries, where every courtesy will assuredly be paid to them.

The Cyclamens are not so numerous by a long way, but the Giant White, Giant Butterfly, the Vulcan, and Giant Vulcan (which latter, however, is not so free as the smaller one, a law that runs through most of the varieties of both Primulas and Cyclamens).

Messrs. Sutton have a "double" pink Cyclamen, but it is not a gem. The segments are ten in number instead of five.

Then there is the frilled type, which is beautiful from certain positions, and may commend itself to some. The shape is somewhat of the shuttlecock arrangement. This form can be had in three colours, namely, white, rose, and purple. The papilio form is also represented.

Others of Giant stem are Crimson and Cherry Red. Giant Pink is a large form of Salmon Queen—a pretty Cyclamen this—and which in turn is lighter than Salmon King. Giant Rose is a pale lilac rose. Phoenix is not quite so dark as Vulcan. These, then, represent the variations so far. The next step is to develop a Picotee-edged section, and the plants are already under observation. Notwithstanding dull skies and unfavourable weather, the Reading Primulas were exemplary models of culture from first to last. Indeed, one of the most remarkable points to the visitor is the wonderful evenness and high excellence from end to end of 13,000 odd seed-bearers.—WANDERING WILLIE.

Royal Caledonian Horticultural Society.

List of Committees.

I. COMMITTEES OF THE COUNCIL.

FINANCE COMMITTEE: Duties.—To have charge of all matters of finance, including arrangements for admission to the exhibitions and meetings, the fixing of rates of admission and sale of tickets, and payment on entrance.

W. H. Massie, 1, Waterloo Place (Convener).
D. W. Thomson, 113, George Street.
Lieut.-Col. Campbell, 30, Waterloo Place.
J. W. McHattie, City Chambers.
John Methven, 15, Princes Street.
A. D. Mackenzie, 14, Greenhill Park.

EXHIBITION AND JUDGES COMMITTEE: Duties.—To have charge of the preparation of the schedule of prizes, and of all arrangements for conducting the exhibitions and meetings, including the letting and allocation of space, arrangement of exhibits, superintendence of judging, lighting and cleaning, hours of admission, music, closing of the shows and removal of exhibits, railway arrangements and advertising.

J. W. McHattie, City Chambers (Convener).
W. H. Massie, 1, Waterloo Place.
James Whytock, Dalkeith Gardens, Dalkeith.
Wm. Smith, Oxenfoord Castle Gardens, Dalkeith.
J. C. Fraser, Comely Bank Nurseries.
A. D. Richardson, 7, West Catherine Place.
Jas. Grieve, Redbraes Nurseries.
D. Kidd, Carberry Tower Gardens, Inveresk.

II. COMMITTEES OF THE SOCIETY.

I. FRUIT AND VEGETABLE COMMITTEE: Duties.—To examine and report to the council on the merits and qualities of the fruit and vegetables exhibited at the society's shows and meetings, particularly with a view to encourage higher cultivation, and the introduction of new and rare kinds and improved varieties.

Mackinnon, G., The Gardens, Melville Castle, Lasswade (Convener).
Buchanan, Charles, The Gardens, Penicuik House, Penicuik.
Cairns, John, The Gardens, The Hirsell, Coldstream.
Cairns, Richard, The Gardens, Balruddery, Dundee.
Calderhead, David, Tweed Vineyards, Clovenfords.
Cook, Thomas, The Gardens, Sandringham.
Crosbie, Alex., The Gardens, Buchanan Castle, Drymen.
Day, James, The Gardens, Galloway House, Garliestown.
Douglas, John, Easter Duddingston, Portobello.
Forbes, James, Overtoun Gardens, Dumbarton.
Hamilton, James, The Gardens, Manderston, Duns.
Hay, T., The Gardens, Hopetoun, S. Queensferry.
Henderson, W., Balbirnie Gardens, Markinch.
Inglis, D., The Gardens, Drumlanrig Castle, Thornhill.
Kirk, Alexander, The Gardens, Norwood, Alloa.
Lunt, Thomas, The Gardens, Ardgowan, Inverkip.
McBean, Donald, The Gardens, Craigends Castle, Johnstone.
Macgregor, Jas., The Gardens, Mentmore.
Mackinnon, Alex., The Gardens, Scone Palace, Perth.
McLaren, John, Ballincrieff, Longniddry.
Melville, David, The Gardens, Elliston, St. Boswells.
Murray, D., The Gardens, Culzean Castle, Maybole.
Smith, James F., The Gardens, Cullen House, Cullen.
Stewart, Charles, Eskgrove, Inveresk.
Thomson, David, Fernbank, Dalkeith.
Troup, W., The Gardens, Castlemilk, Lockerbie.
Webster, Charles, The Gardens, Gordon Castle, Fochabers.
Williamson, W., 14, Eyre Crescent.
Wilson, Thomas, The Gardens, Glamis Castle, Forfar.
Woodcock, R., Archerfield Gardens, Dirlerton.

II. FLORAL COMMITTEE: Duties.—To judge improvements in plants and flowers.

Whytock, James, Dalkeith Gardens, Dalkeith (Convener).
Brooman-White, R., Ardarroch, Garelochhead.
Brotherston, R. P., The Gardens, Tynninghame.
Campbell, M., Auchinraith Nurseries, Blantyre.
Cocker, William, Springhill Nurseries, Aberdeen.
Croll, David, Nurseryman, Dundee.
Cummins, G. W., Florist, Mablethorpe, Lincs.
Cuthbertson, M., Nurseryman, Rothesay.
Cuthbertson, Wm., Nurseryman, Rothesay.
Dickson, Hugh, Royal Nurseries, Belfast.
Forbes, John, Nurseryman, Hawick.
Fraser, P. Neill, Rockville, Murrayfield.
Harrow, Robert, Royal Botanic Garden, Edinburgh.
Hogg, Thos., The Gardens, Woodside, Paisley.
Lindsay, Robert, Kaimes Lodge, Murrayfield.
Lunt, Thomas, The Gardens, Keir, Dunblane.
McIntyre, Malcolm, Gardens, The Glen, Innerleithen.
McKenzie, Alex., Warriston Nurseries, Edinburgh.
Mackinnon, John, The Gardens, Terregles, Dumfries.
Mackinnon, Wm., 144, Princes Street, Edinburgh.
Mather, R. V., Kelso.
Melville, D., The Gardens, Dunrobin Castle, Golspie.
Newbigging, John, Nurseries, Dumfries.
Paterson, John, The Gardens, Salton Hall, Pencaitland.
Pirie, W., The Gardens, Dalhousie Castle, Bonnyrigg.
Sharp, William, The Gardens, Freeland, Perth.
Simpson, Wm., The Gardens, Wemyss Castle, Fife.
Sinclair, George, East Linton, Prestonkirk.
Smellie, John, Busby.
Smith, Thos., Nurseries, Stranraer.
Street, Charles, The Gardens, Floors Castle, Kelso.
Urquhart, F., The Gardens, Prestonhall, Dalkeith.
Whitton, James, Superintendent of Public Parks, Glasgow.
Wood, Geo., Oswald House Gardens, Oswald Road.
Wright, Wm., The Gardens, Taymouth Castle, Aberfeldy.

III. SCIENTIFIC COMMITTEE: Duties.—To examine and report on all matters of scientific interest or importance that may be brought under their notice at the society's exhibitions or meetings, or otherwise in connection with the objects of the society.

Fraser, P. Neill, Rockville, Murrayfield (Convener).
Arnott, Samuel, Rosedene, Carsethorn, by Dumfries.
Bailey, Col. F., 7, Drummond Place, Edinburgh.
Boyd, Wm. B., Faldonside, Melrose.
Buchanan James, Oswald House, Edinburgh.
Ferguson, R. C. Munro, Raith, Kirkcaldy.
Geddes, Professor Patrick, 14, Ramsay Gardens, Edinburgh.
Grieve, Symington, 11, Lauder Road, Edinburgh.
Macdougall, R. Stewart, M.A., D.Sc., Archibald Place, Edinburgh.
Masters, Maxwell T., M.D., F.R.S., Mount Avenue, Ealing, W.
Maxwell, Sir Herbert, Bart. of Monreith, Wigtownshire.
Paul, Rev. David, M.A., LL.D., Carridale, Fountainhall Road, Edinburgh.
Smith, Dr. Wm. G., Yorkshire College, Leeds.
Sprague, Thos. Bond, LL.D., 29, Buckingham Terrace, Edinburgh.
Trail, James W. H., Professor of Botany, Aberdeen.
Watson, Wm., M.D., The Lea, Corstorphine.
Wilson, John H., D.Sc., F.R.S.E., South Street, St. Andrews.

Plant Notes.

New American Carnations.

The following new varieties have been registered by John E. Haines, Bethlehem, Pa.: Juno, a bright scarlet, in size 3in and over, with well formed flower, which is fragrant and does not burst the calyx; stem long and strong, a free bloomer from September to June, and a rapid grower. Imperial, a pink variegated, stems from 30in to 36in long, size of flower 3½in, a free bloomer with hardy growth; blooms from September to June.

Edelweiss.

Most of us are familiar enough with the name of Edelweiss, which is still associated in the minds of too many with inaccessible mountains, dangerous ascents, and fatalities which have befallen the rash and foolhardy ones who have risked and lost their lives in seeking to gather this plant. It has about it the halo of romance, for have not many Swiss lovers dared much to gather the Edelweiss to prove their devotion and bravery to the maiden of their hearts? But we have no need to risk our lives in search for the Edelweiss, for all who have a garden

to possess it need only sow some seeds in spring in a cold frame or in a cool greenhouse, and to give the seedlings the ordinary attention of other perennial flowers when in a young state. Then, when the plants have reached a stage of size at which they may be safely trusted to look after themselves with a little attention on the part of the grower, they may be planted out on a dry and sunny rockery, or on a raised border, if in light soil with a little limestone about the plant. The plant itself is not showy, but withal it is pretty. Its botanical name is *Gnaphalium* or *Leontopodium alpinum*, and it belongs to the composite family. It grows only a few inches high, and is prized greatly because of the woolly covering of white hairs which cover the whole plant and the large white involucres which surround the small and rather insignificant yellow flowers. If the plant is dried it is almost literally what is said of it figuratively—everlasting, and can be kept for years if preserved from dust and damp. In wet climates it is just as well to add, it is advisable to screen it from the rains of winter



Chrysanthemum, General Buller.

by a sheet of glass, a slate, or a piece of thin wood raised a little above the Edelweiss so as to give plenty of air, and at the same time to throw off the rain. It is thoroughly hardy and perennial.—S. A.

Chrysanthemums for Decorative Work.

I enclose a photo of a spray of General Buller Chrysanthemum, which has been in bloom for the past six weeks, carrying ten flowers on the spray, besides two specimen blooms. I think growers ought to include this one in their collections, either for market or private use. The colour is a very telling one, and the blooms are of a pleasing size, and, grown on the terminals, it is lovely. A few varieties besides this one which did me good service in the past season are *Souvenir d'Une Petite Amie*, *Soloil d'Octobre*, *Frank Willcox* (a companion to *Sourco d'Or*), and the lovely type *Lilian Bird*, also *Rayonnante*, all grown as bush plants, carrying from three to four dozen blooms. I think the above are well worth growing for decorative work.—J. TOWELL, The Gardens, Dunbarton, Gilford, Ireland.

Jasminum primulinum.

This is a great object of interest at Gunnersbury Park just now. Resembling in habit *J. nudiflorum*, with flowers of similar shape and colour but larger, while the foliage is evergreen, it may yet, to use the words of Professor Oliver, "be regarded as a glorified form of *J. nudiflorum*." It is free blooming, the flowers are very persistent, and hang on to the branches till they fade. It is a very valuable winter-flowering plant for conservatory and house decoration, and will no doubt become largely cultivated.—R. D.

Tropical Plants and their Treatment.

In the whole realm of gardening probably no phase of work appeals more irresistibly to the young practitioner than the culture of stove plants. Such, at least, is deduced from past personal experience and present observation of our gardeners to be. 'Midst all the changeable scenes of a gardener's life—and they are many—it is not infrequently "off with the old love and on with the new," but no abatement of that fascination this subject is environed with has ever been noticed, and in spite of fashion or of fancy we have here attractions which, apparently, "age cannot wither nor custom stale."

The recognised importance of it in relation to high-class gardening provides a pertinent excuse for this preamble to a subject which for nearly forty years has enmeshed the writer with its glamour; and in looking back there comes from afar off, yet clear and distinct as a lighthouse flash over troubled waters, the hopes and fears, the joys and griefs surrounding flower show feuds fought out with our specimen plants on the battlefields of Stonewallshire. There we of the bothy, though not sharing the prize money, could not be denied our quota of the glory of success or the depression of defeat. Added to this the high tone a collection of well-grown stove plants gives to a garden, the watchfulness, care, and skill necessary to bring them to and keep them in perfection, no more need be said for the claims this phase of gardening possesses; and the encomium passed by Dickens's immortal Mrs. Pipchin on Dr. Blimber's establishment, "It's very expensive," is all that can be said against it. Few will deny the latter, therefore most will admit that the better the return for expense incurred the greater the satisfaction to all concerned. With one remark, viz., that the present time is *the* time to commence operations, for "ill-timed advice, like the wrong medicine, is nasty to take and sure to disagree," and an apology for so much tuning with the object of striking a chord of inspiration amongst our young gardeners, we come to

THE PLANT STOVE AND PROPAGATION.

The size or form of the house, with its heating and ventilating appliances, although of the first importance, is probably, perhaps unfortunately, less a matter of our concern than it has been to our predecessors who were concerned in and responsible for its erection. Happy is the man who, being keenly interested in this subject, has all he wants in this direction. For many years it was the writer's desire to have a propagating house for this class of plants—one after his own heart and design—which is now an *fait accompli*; but it came late in life, though better late than never, for it is an invaluable adjunct to the stove house proper. The propagating house in question is a low span-roof with heated plunging beds, commanding a temperature of 80deg to 90deg, and the propagating medium (cocoa fibre refuse), filling the beds to a foot in depth; and it may be taken for granted that cuttings of stove plants, generally, which do not root in this will not root at all, added to the clean, expeditions, and all-round satisfactory manner by which they are transformed into little plants ready for potting and replunging in the same material to give them a proper start in life.

By the way, a trial is now being made of granulated peat moss litter as a propagating medium, having been recommended as superior for the purpose; but of that more anon. In any case it is cheaper than the fibre, an advantage which cannot be overlooked, considering that the beds have to be wholly or partly renewed annually. As a matter of fact, however, given the tropical heat and moisture uninterruptedly maintained, cuttings of stove plants will root in nearly any medium that may be employed, such as sawdust or rough leaf mould. As a substitute, or rather makeshift, for the propagating pit proper, a warm corner of the plant stove, in which a glazed box or frame can be placed immediately on the hot-water pipes answers the purpose, although its usefulness is restricted to its size, which seldom allows for replunging youthful plants when potted, or hospital treatment for the sick. Cuttings of *Crotons*, *Dracenas*, with their cut up stems and root pieces, *Dieffenbachias*, *Nepenthes*, and all the variabilia which go to form the collection and keep the tropical plant house furnished, are now being inserted—a work which will be continued throughout February, when there will be stock galore for all purposes, and to spare.

Anomalous as it may appear, many hardy plants of a shrubby nature which are wholly impatient of heat may be propagated by this method, the secret of after success being the gradual inuring of them to their natural conditions. For instance, cuttings of *Tamarix gallica* which failed to root under cool treatment quickly responded to the genial influence of the hot plunging bed, sections of the hard wood being inserted, rooted, potted, and gradually hardened off. This was done last summer, and the plants, now two feet high, are growing au naturel in the open. Leaves of the *Rex Begonias* taken off now and laid on the surface

of the plunging material, scoring the midribs with a knife at intervals, will give a host of attractive little plants that are especially useful from a decorative point of view.—A. N. OLD-HEAD.

(To be continued.)

When to Plant.

The pitiless rain, which seems to show few signs of withholding its hand, has brought the soil into such a sodden condition that unless a change comes quickly the outlook will be serious indeed for crops generally, and in gardens the early ones in particular. Those having light soils to deal with have a considerable advantage, as the water passes through it so freely that after a couple of days of fine weather digging may in many instances be proceeded with, and a light forking of the soil already dug brings it—by the aid of a few hours' sunshine—into a condition suitable for sowing such early crops as Peas and Beans. On stiff land, however, nothing can be done for a while with any prospect of success, as far as seed sowing is concerned.

Such adverse conditions must also have greatly delayed the work of planting trees and shrubs, and undoubtedly much remains to be done throughout the country to complete such work by the usual time; but as the conditions in regard to rainfall are so exceptional there may with advantage be a departure from ordinary practices in regard to planting. During normal seasons the great disadvantage of late planting is that the trees start into growth before they have many active feeding roots, and then by the time such roots have been formed dry weather sets in, and very little progress can be made, even if the trees do not die outright.

This season, however, there will be no lack of moisture for months to come, for not only is the surface soil wet, but as the moisture has penetrated to the subsoil there is a good reserve capable of being drawn up by capillarity in times of need, and with good surface culture this will be diffused between the particles of soil for the benefit of the young rootlets. Those who have followed the excellent practice of ordering their trees and shrubs early for delivery in autumn, and on their arrival have "laid them in by the heels," will at this season find them bristling with young rootlets, and under such conditions spring planting in moist soil will often equal in results autumn planting. In fact, autumn planting, after very dry summers, sometimes does not succeed so well as many expect it to, simply because there is too little moisture in the soil for the formation of young rootlets, and hence arise the conflicting statements as to whether autumn or spring planting is the better plan.

One cultivator may plant in the autumn of a certain year when, as the soil was in good condition, excellent results were obtained; another may plant in the spring in a different year, when the soil is moist, and is followed by a wet summer, and get much better results than by autumn planting in a previous season, when the soil was dry at planting time, and the ensuing summer a hot one; the former then entertaining the fixed idea that autumn planting is *the* plan, and the latter is equally certain that spring is the better time to plant, the absence of a nice discrimination in regard to circumstances preventing either from giving a really sound judgment. The two wet, cold springs of recent years have taught us many things, among others the necessity of planting main crop Potatoes later than during the usual time of April, and this year's experience will, I fancy, show us equally clearly that the planting of trees may be carried on with success till the middle or end of March, when suitable conditions prevail.

Those who are wavering between two opinions as to whether they should plant now or wait till next autumn should certainly take steps at once, order the necessary trees, and have the land prepared by the time they arrive, so that they may be planted at the first opportunity. The conditions which prevail now may be more favourable than during next autumn, for who can dispute the possibility of two wet summers being followed by a very dry one?

With regard to Roses, February has long been a favourite month for planting, especially in the case of Teas, which during severe winters are often killed outright if planted in autumn; H.P.'s, and other hardy varieties, if planted now and pruned later than established bushes, will supply flowers at a time when Roses are usually scarce, coming as they do after the early flowers on established plants are over, and before those from secondary growths have been produced. Much more might be advanced on the above subject, but enough has, I think, been written to show that the next month should be a time of hustling activity where there is planting to be done.—H. D.

NOTES

NOTICES

Feltham Gardeners' Society.

Mr. Spencer's paper on "Ferns" having been postponed, a paper on "Pruning" was read by the hon. secretary at the meeting of the Feltham, Bedfont, and Hanworth Horticultural Mutual Improvement Society on Wednesday, February 10.

The Proposed Gardeners' Association.

We learn that a further meeting, to which anyone interested in the above subject is invited, will be held in the Horticultural Club room, Hotel Windsor, Westminster, on Tuesday next, February 23, at 2 p.m., when a report of the committee of gardeners appointed at the December meeting will be presented. As since that report was drafted some new suggestions have been imported into the matter, and these may be advocated at the meeting, a bright discussion is looked for. Generally we are informed the report of the gardeners' committee is not favourable to the formation of an association, but there is no telling what, after all, may be the decision of the meeting next Tuesday.

Presentation to Mr. Paines, Binfield.

A meeting of the Binfield and District Horticultural Mutual Improvement Society was held at Crix Cottage Iron Room on Tuesday, February 3, when the members presented the hon. secretary and treasurer (Mr. E. Paine, of Marchfield Gardens) with a silver sovereign purse containing gold. The purse was supplied by Mr. Goreley, of Wokingham, and bore a suitable inscription. Miss A. E. Shaen, of Crix Cottage, made the presentation, and said a few appreciative words of the value of Mr. Paine's work for the society. The chairman (Mr. Ashman, of Billingbear Gardens) spoke of the energy Mr. Paine had shown, and to which the success of the association was mainly due. Mr. Paine in reply thanked the members for the handsome present. A "Question Night" followed, and proved a pleasant change to the ordinary "paper" and discussion.

Royal Horticultural Society.

The next fruit and flower show of the Royal Horticultural Society will be held on Tuesday, February 23, in the Drill Hall, Buckingham Gate, Westminster, 1 to 4 p.m. A lecture by Mr. R. Lewis Castle, of the Duke of Bedford's experimental gardens, on "Pomology," will be given at 3 o'clock. At a general meeting of the society held on Tuesday, February 9, eighty-nine new Fellows were elected, making a total of 261 elected since the beginning of this year. * * The prize of £10 offered by the Council of the Royal Horticultural Society for the best essay on cottage and allotment gardening has been won by the Motto "Observe and Practice," Mr. C. Wakely, of Chelmsford.

Owing to unforeseen circumstances the centennial dinner of the society proposed to be held on March 3 is unavoidably postponed.

A Successful Chrysanthemum Society.

The Windsor, Eton, and District Chrysanthemum Society, which was started in 1892, should be proud of its career. We hear from the secretary that each year the balance-sheet has shown that, through the careful management of the committee, the receipts have just exceeded the expenditure. In the first year the prize money given was over £50, exclusive of specials, and the last six years the average has been £67 13s. 4d. per annum. The balance for 1903 is just over £10. The one great drawback to the society is the want of a larger hall for the shows, a want which at present Windsor cannot supply. The committee consists of eight amateurs and twelve gardeners, elected annually—nine of whom have been members since the commencement—and are fortunate enough of late to have Mr. Arthur Turner for their chairman, whose valuable advice and assistance is much valued. We trust there are many other societies who could show the same steady advancement, also that the Windsor Society may long continue its useful and prosperous career.

"Notes on Alcohol."

This is the title of a pamphlet by Sir Walter Gilbey, Bart., and is published by Vinton and Co., 9, New Bridge Street, London, price 6d. "The writer's object in compiling this brief work on alcohol is to show its relative value in brandy, whisky, and rum. Alcohol is the principal component of these spirits, but their flavours are of such importance that any deficiency in them renders the spirits less suitable for consumption." The manufacture of spirits is briefly described, and illustrations of stills appear.

Birmingham Gardeners' Association.

The annual reunion of this flourishing society took place on the 10th inst. at the Colonnade Hotel, when there was a large assemblage of the members and lady friends; Mr. W. B. Latham presided. An excellent programme of music, songs, and recitations, interlarded with the usual complimentary toasts, &c., followed the tea. The toast of "The Association" was given in appropriate and happy sentiments by Mr. T. Humphreys. The toast was responded to by the chairman in felicitous terms. Mr. W. Spinks courteously proposed the health of "The Ladies and Visitors," and Mr. John Careless, in affable and chivalrous sentiments, responded for them. Mr. C. R. Bick gave "The Chairman and Vice-Chairman" (Mr. Walter Jones); and Mr. W. Gardiner toasted "The Entertainment Committee" (Messrs. Jones, Spinks, and W. L. Deedman), the latter, the secretary, suitably responding.

Mutual Improvement Societies.

The Devon and Exeter Gardeners had an excellent lecture a day or two ago at the Guildhall, Exeter, by Mr. S. Baker, of Wear House Gardens, on "Tomatoes." Mr. J. Rogers, of Barley House Gardens, presided, and the competition was for three heads of Seakale. The prizes were awarded as follows: 1, Mr. J. Rogers, Barley House; 2, Mr. J. Ford, Fair Park House; 3, Mr. Coles, Elmfield House. * * The first annual meeting of the Dorchester and District Gardeners' and Amateurs' Mutual Improvement Society was held in the Borough Magistrates' Court over a week ago. Captain Dymond is president. There are seventy members. The receipts amounted during 1903 to £17 9s. 6d., and there is a balance of £7 8s. 3d. The officers were re-elected, and a good programme is looked for during the coming summer. * * Mr. H. J. Jones gave a lecture on "Sweet Peas" before the Beckenham Horticultural Society on February 12.

Help for the Gardeners' Royal Benevolent Institution—Bristol and Bath Auxiliary.

A special meeting of this Institution was held at Chivers's Restaurant on Friday evening last. Mr. W. A. Garaway, occupying the chair, explained the object of the meeting, namely, to consider the advisability of holding a Rose, Begonia, and orchid show in aid of the Institution. Mr. Vallance was invited to explain the position, and remarked on the want of funds to meet the requirements of the Bristol and Bath Auxiliary, and it was felt that the time was opportune to provide some scheme for increasing the income. They had for several years past been enabled, through the generosity of many leading gentlemen of the district, who threw open their gardens to the public, to add to their funds, and had also been materially assisted by the Bristol Chrysanthemum Society and the Westbury Show by the sale of produce there. But notwithstanding this able assistance, the society was short of funds. Mr. Vallance thought that a Rose show would be the best means of increasing the income of so deserving a charity. He therefore proposed that a show be held for the purpose. He understood that a bazaar in aid of the Winsley Sanatorium was to be held this year at the Zoological Gardens, and it would not be generous of them to hold the show this year in face of that most deserving institution, but he thought it could be done next year. A discussion was invited. Many gentlemen spoke, and on the vote being taken, it was unanimously decided to hold the show during the summer of 1905. The question of a guarantee fund was also brought forward and responded to in a very gratifying way, many gentlemen adding their names to the list of guarantors. An additional committee was elected, and Bristol may now look forward with interest to a floral show which will certainly meet the tastes of all lovers of horticulture.

Rugby and District Chrysanthemum Society.

I notice in your last issue that you headed the paragraph in my letter as the "Rugby and District Horticultural Society." This is not quite correct. It should have been as above. The latter society only started last year, and is quite distinct.—WILLIAM BRYANT, Secretary.

Scottish Challenge Trophy for Grapes.

An error of date was made in our paragraph on page 118. The exhibition at which the Grapes are to be shown is, of course, that on September 14 and 15. We regret the slip, which was made in the haste of writing, but all who are interested in this great Grape competition (for a challenge trophy valued at fifty guineas, with a gold badge and £15 in cash) should write for a schedule to the secretary, Royal Caledonian Horticultural Society, 5, York Place, Edinburgh.

The Weather in the North.

The weather during the first half of February has continued changeable, with a preponderance of dull days and showery nights, while some days, notably the 9th and the 11th, were unseasonably fine. Frost has been recorded on six mornings, but this has been of no great intensity. The hills around have been over and over again thickly whitened, but little snow has fallen on the lower grounds. In the northern counties 2ft of snow is lying. Monday was cold with 6deg frost and drifting snow showers.—B. D., S. Perthshire.

The Name of the R.H.S. Hall.

Before the new building of the Royal Horticultural Society approaches much nearer to completion the Council, it would seem, will have to hold a christening ceremony. The tendency, even from official quarters, is to call the building the New Hall; but this, we venture to think, is hardly to be the permanent name. "Horticultural Hall" is an advertisement and explanation combined, just as the Agricultural Hall is; and if this title be adopted it would be very satisfactory. Parties wishing to hire the hall can think of flowers, gardening, horticulture, as the associations that will cling around the building, and, thinking so, will surely find these fancies meet for the most æsthetically circumscribed organisations.

Proposed Scottish Gardeners' Trip to Shrewsbury.

A number of horticulturists and others interested having expressed a wish to visit the popular horticultural show on 17th and 18th August, 1904, negotiations have been opened with the railway companies for such an excursion, which will be organised if sufficient support is promised. Excursionists might leave Edinburgh late on Tuesday night and return from Shrewsbury on Wednesday night, or have an option to remain a day or two longer. Intimation, or application for further particulars, should be made to the undersigned, and it will greatly facilitate arrangements if early intimation can be given. Such intimation does not bind anyone to go if, later, circumstances should prove unsuitable.—P. MURRAY THOMSON, sec. and treas. Royal Caledonian Horticultural Society, 5, York Place, Edinburgh; PETER LONEY, sec. Scottish Horticultural Association, 6, Carlton Street, Edinburgh.

Plan Drawing Competition for Under Gardeners.

Prizes are offered by the Royal Caledonian Horticultural Society for a plan, drawn to scale (32ft to inch), for laying out a piece of ground about six acres in extent. It is unnecessary to show on the competitive plans the whole area shown on the sketch plan (for which see schedule). The portion to be treated is bounded by the public road, wire fence, plantation and railway. The dotted contour lines show the elevations, in feet, of the ground to be laid out and of the adjoining properties. The ground is to be laid out suitably for a suburban residence garden. First, 60s.; second, 40s.; third, 20s. The first and second prizes are given by Sir John Gilmour, Bart., Montrave, and the third prize by the society. On each plan there should be a short explanatory key. Each plan and description must bear a motto and be accompanied by a sealed envelope bearing the same motto and enclosing the competitor's name and address. All plans for this competition must be in the hands of the secretary (Mr. P. Murray Thomson, 5, York Place, Edinburgh) not later than 1st April, 1904.



Pruning Outdoor Vines.

In order to continue bearing good crops of fruit the annual pruning of the Vines on outdoor walls and trellises must not be neglected. Much growth is made in a season, all of which cannot be retained. In the case of spur-pruned branches, the side shoots must be limited on each spur, and shortened to, as a rule, not more than two buds. If the lower bud is plump and prominent, this only need be retained. Should there be room on the wall or trellis a few young canes may be trained in, not allowing them to extend, however, beyond 4ft in length, if such an amount of space is available. The young canes may also be utilised to replace old worn-out branches.—E. D. S.

Floral Decorations.

At the wedding, at the residence of Justice and Mrs. McKenna, of their eldest daughter, Isabel, to Pitts Duffield, of New York, the decorations were executed by Mr. Geo. H. Cooke. The ceremony took place in the window recess of the parlour, transformed into a bower of green, beneath a chime of white satin bells tied with white satin ribbon. An American Beauty Rose served as a tongue for each bell. The bride carried a shower bouquet of Lily of the Valley and Cypripediums; the bridesmaids carried bouquets of Liberty Roses showered with Lily of the Valley. Over the doorways and mantel were double Roman wreaths decorated with white Roses and Cypripediums. The walls of each room on the first floor were sprayed with Smilax. At the wedding breakfast, the library table, reserved for President Roosevelt and the bridal party, was decorated with Lily of the Valley and Adiantum Farleyense.

The Gypsy Moth.

Introduced as an experiment in silk raising the gypsy moth has become in a little over thirty years a terrible pest in Massachusetts as a centre, spreading slightly beyond the limits of the commonwealth into the neighbouring States. It has cost the government of the commonwealth an enormous amount of money to fight it, and yet to-day it stands as perhaps the most serious insect pest of that part of the country. Over one million dollars were expended. It is now proposed to introduce the natural enemies of the moth—one of the parasites that prey upon it and apparently keep it within bounds in Europe. Removed from the warfare of nature the pest has increased until quite beyond the ordinary control of man. Thus did also the San José scale and the English sparrow with us and the rabbit in Australia. In the plant world similar instances are to be found; *Anacharis canadensis*, for example, introduced to English ponds, has overrun the bounds, and is a most troublesome weed. The balance of nature is not to be lightly disturbed.

Giant Pineapples.

The culture of the Smooth Cayenne Pineapple in Jamaica has been attended with such extraordinary success that the plants have produced mammoth fruits weighing as much as 20lb each. It is said that these giant Pineapples frighten the buyers in the English markets, whose idea of a saleable Pine is limited to one of 6lb to 8lb each. The popular St. Michael Pines now coming in for the present season range from 3lb to 6lb in weight, and meet the wants of the dealers. Still, fruits of 20lb should command a large and profitable sale for shop window show purposes alone. In one district just reported upon it is stated that 80 per cent. of the plants will, on account of the richness of the soil, produce monstrosities in Pineapples heavier than the weight named. The soil contains six times the normal quantity of nitrogen, and to this fact the remarkable vegetable exuberance is attributable. The soil of Jamaica suits the Orange as well as the Pineapple. Giant Mandarins from the colony are selling first hand at 7s per case of 64 fruits, which is nearly at the rate of 1s. 6d. a dozen. These are fancy prices, 100 per cent. more than is paid for Spanish Mandarins. The Jamaica Mandarin Oranges as marketed lately are the finest of their class which have ever been imported into the United Kingdom.

Salvia gesneræflora.

This plant is one of the handsomest during the winter and early spring months, producing a profusion of bright scarlet flowers, which are useful for cutting. The cultivation is easy, and it succeeds out of doors. Lifted in autumn, the plants flower in the spring. As with other plants of the order, it enjoys liberal supplies of water, but of course these must be given judiciously. This *Salvia* may be propagated by cuttings in spring, which may be potted-on, or placed in the open ground during June.

Lemon Verbenas.

Old stock plants of Lemon Verbenas and Lantanas, which are now in a state of partial dormancy in a cool house, should be started up by applying a little more heat (says the "American Florist"). If they were grown in pots during the previous summer, they will need a shift to a larger pot; in this case, renew some of the top soil, and repot in good rich soil. In a few weeks a lot of cuttings will be ready, which root easily in the sand, and will make fine 3-inch stock for the spring trade. The stock plants of Lemon Verbena should be grown in pots the year through. Some growers prefer to plant them out during the summer, but lifting checks them too much, and they start into growth too late in the season to make useful cuttings. They are deciduous, but if grown in pots they will start up early and produce abundance of soft growth in plenty time for propagating for spring. Anthericums should also be shifted to a size larger pot and started to growing in a moderately cool house. Plants in 4 and 5-inch pots will make good stock for vases and verandah boxes. Cuttings taken now for next season will root easily in the sand.

Lonicera tatarica grandiflora.

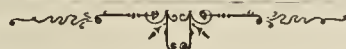
This is the season to make cuttings of the many shrubs propagated from hard wood; and when engaged in the work, and you come to the Tartarian Honeysuckles, get all you can of the *Lonicera tatarica grandiflora*. All of the bush Honeysuckles (says Mr. Meehan, in the "Florists' Exchange"), as this class of *Loniceras* is called, are of value, but I do not hesitate to place at the head of the list the *grandiflora*. These Honeysuckles are valued for two things chiefly: their pretty, early spring flowers and the coloured fruit which follows. Of the many varieties in cultivation, the colour of the flowers varies from white to pink. *Grandiflora* has pink flowers, and it produces the largest blooms of the deepest pink colour of any sort; it is the most showy of all. The bright berries of these bushes charm many. They ripen very soon after the flowers disappear, and adorn the bushes until quite late in summer; and, fortunately, birds do not disturb them. The flowers are produced on the twigs of the previous season, so, as is well understood, pruning should be done soon after the flowering is over. But be careful not to prune heavily, or you will not have as many bright berries as you wish.

A Nursery in Colorado, U.S.A.

Nestling at the foot of the Rocky Mountains of Northern Colorado, with rugged foot-hills stretching north and south as far as the eye can reach, and with lofty peaks ever displaying their snowy summits, is situated the beautiful city of Boulder. Here, also, is located our seed establishment, trial grounds, &c., more than a mile above sea-level, far above the clouds, nearer the sky than any similar institution in the world. Abundant sunshine, a never failing stream which irrigates our grounds, together with good soil and favourable climate, make a rare combination of conditions not to be excelled for the growing and ripening of good seeds. Within twenty-five miles of our nursery gradations of altitude are met with, covering a range of nearly 9,000ft, reaching a maximum altitude of more than 14,000ft above sea-level. This brings within our reach plants of the arctic regions, plants of the sub-alpine swamps and bogs, trees and plants from dry hill sides and well watered valleys, and from the rocky cliff and arid plains. Perhaps nowhere in the world in so small a radius is it possible to find a natural collection of trees, shrubs, and plants of such infinite variety and remarkable beauty already inured to a rugged climate, from which may be selected flowers suited to every situation where plants can exist.—D. M. ANDREWS, nurseryman.

Royal Scottish Arboricultural Society.

JUBILEE CELEBRATION.



THE interests of the forestry industry, in which numbers of our readers are largely or wholly concerned, are promoted and protected in the northern half of Great Britain by the Scottish Arboricultural Society, whose jubilee was celebrated on Tuesday evening in Edinburgh. We are privileged to reproduce on this page the portraits of the president, W. Steuart Fotheringham of Murthly; of the honorary secretary, R. C. Munro-Ferguson, M.P.; and the secretary, Robert Galloway, S.S.C. The two former are well known figures in their public capacities, and they do their duty to their country in accepting the posts they hold in the Arboricultural Society. Both the president and the honorary secretary are large owners of land in Scotland, and Murthly, Raith, and Novar are known to all of us. Mr. Galloway, as secretary, is respected for his unfailing courtesy, helpfulness, and ardour for work, and it must also be a joy to him to mark the success of the society's labours.

* * *

The society was established in 1854 with a view to further the education of foresters and landowners, not only as to the *modus operandi* of successful wood management and growth of plantations, but to enlighten the public mind as to the national importance of home-grown timber. The society was also meant to be a bond of union amongst practical foresters, who till then were largely isolated units without social ties.

The first president was Mr. James Brown, wood commissioner to the Earl of Seafield, and during the fifty years of the society's history many eminent men have occupied the presidential chair; indeed, a glance at the list of past presidents shows that the members have had rather a weakness for men with titles; eminent or otherwise. Amongst them were the late Earl of Stair, the Duke of Athole, the Earl of Airlie, the Marquis of Linlithgow, the

of management have always been composed of the leading foresters and estate managers of Scotland, as well as a number of prominent nurserymen, chiefly of Edinburgh, who have worked hard to achieve the success that has largely attended the operations of the society. In 1869 the late Queen Victoria became Patron, and in 1887 granted permission to use the title "Royal." The offering of prizes for essays on practical subjects and for inventions connected with appliances used in forestry, was one of the first things undertaken by the society, and have been continued ever since, with much valuable educational results. These, published in the annual Transactions of the society, which began in 1856, have always been largely read and appreciated by the members. No fewer than 397 medals and money prizes have been presented.

In 1884 the society promoted the great Forestry Exhibition in Edinburgh, which was most successful, and did much to popularise its work and to increase an interest in its proceedings. Through its influence a lectureship on forestry was started in Edinburgh University in 1889, and has been continued since. The society has long aimed at founding a Chair of Forestry in the University, and has raised a sum of £584 towards this object. A station for research and experiment, and a model forest are also aimed at. Meantime, Mr. Munro-Ferguson, M.P., the honorary secretary, who has done splendid service to the society, for a part of whose woods at Raith a working plan has been prepared, and is now in operation—has very kindly agreed to allow students to visit them.

For twenty-five years well organised excursions have been made annually to various parts of Scotland, England, and Ireland. In 1895 a tour of twelve days was made through the forests of northern Germany, and in 1902 a tour extending over seventeen days was made in Sweden. During the present year an excursion to



W. Steuart Fotheringham of Murthly.
President.



R. C. Munro-Ferguson, M.P., Hon. Sec.



Robert Galloway, S.S.C., Sec. & Treas.

Marquis of Lothian, Sir Herbert Maxwell, the late Professor Balfour, and his son, the present Professor Bayley Balfour, Dr. Cleghorn of Stravithie, Mr. Munro Ferguson, M.P., the Earl of Mansfield, &c. The present president is Mr. Steuart Fotheringham of Murthly, Perthshire, an estate noted for its splendid woods. The committees

the forest districts of France is contemplated. Exhibitions of forest products and objects of interest are now being held annually in connection with the Highland and Agricultural Society's great exhibitions of cattle and implements. Some years ago the Arboricultural Society, in co-operation with the Horticultural and Botanical Societies

of Edinburgh, erected a monument in Dalkeith Cemetery to the memory of the late Mr. Malcolm Dunn, gardener at Dalkeith Palace, who, with his well known enthusiasm and universality of aim, took great interest in all its proceedings, and for years was one of its most active and valuable members. "The Arboricultural" has still funds to commemorate Mr. Dunn's memory in some other way associated with forestry.

* * *

The annual and jubilee meeting was held in the rooms of the Young Men's Christian Association, St. Andrew Street, and was very largely attended. Mr. Steuart Fotheringham, of Murthly, occupied the chair, while among those present were Sir Kenneth Mackenzie, of Gairloch; Sir Archibald Hepburn, of Smeaton, Major Caddell, Colonel Bailey (Lecturer on Forestry), Dr. Somerville, Sir Ralph Anstruther, &c.

The annual report was read by the secretary, and showed that the society maintains the progress that has attended it for many years, the number of members now being 1016, an increase of sixty-one over last year. All the various enterprises of the society had been successfully carried on; the finances were very favourably reported on, a clear balance of £90 having accrued on the year, with a total accumulated fund of £1,229 7s. 6d. The reports were unanimously adopted, and members of council were elected in room of those retiring.

The following were elected honorary life members of the society:—The Right Honble. the Earl of Mansfield, Colonel Bailey, F.R.S.E., Lecturer on Forestry; Dr. Somerville, assistant secretary Board of Agriculture; Mr. J. G. Thomson, wood manager to the Countess of Seafeld, Strathspey; Mr. James Kay, wood manager to the Marquis of Bute; and Mr. D. F. Mackenzie, factor, Mortonhall.

On account of the absence of a number of prominent members it had been arranged, previous to the meeting, to postpone the forestry conference till July, at Perth, when a short excursion will also be made to the famous woods at Murthly and Scone Palace.

A resolution was unanimously passed calling on the Board of Agriculture "now to take steps to give effect to the recommendation of the Departmental Committee on Forestry, by providing an estate to serve as a State Forest Demonstration Area, and also by providing plots in connection with Edinburgh University to carry on forestry education."

When the formal business had been completed the president gave a short address to the members on the past history of the society, giving, in a few sentences, the leading facts of the society's progress as noted in this report.

Mr. Fraser Story then delivered a most interesting and instructive lecture on "German Forestry," with lantern illustrations. Mr. Story detailed in a clear and rapid manner the various items of interest in the progress of plantations in Germany, illustrating very clearly all the different methods by very excellent photographs, taken by Mr. Story himself. Mr. Story urged strongly on his audience to study the various German methods, and wherever they could be adopted in our country to adopt them. A very interesting discussion followed, taken part in by Mr. Davidson, of the English Arboricultural Society; Mr. Elwes, of the Royal Agricultural Society; Mr. Richardson, and others. Votes of thanks to the lecturer and to Mr. Steuart Fotheringham, for his conduct in the chair, brought the afternoon meeting to a close.

In the evening the members to the number of about ninety dined in the Royal British Hotel, the president, Mr. Fotheringham, in the chair, and Sir Kenneth Mackenzie acting as croupier. The attendance was representative of the members, and included a number of the members of the Edinburgh Town Council, the leading nurserymen in Edinburgh, and several from a distance. After dinner a long and interesting toast list was gone through, and a highly enjoyable evening was spent.

The chairman, in a happy vein, proposed the loyal toasts. In replying to the toast of the "Imperial Forces" Major Caddell made a highly original and amusing speech, connecting the Imperial Forces with Forestry, inasmuch as a navy could not exist without wood.

Dr. Somerville, in an eloquent and interesting speech, proposed the toast of the evening, "The Royal Arboricultural Society of Scotland," reviewing many of the early experiences of the society, and showing how that many of its early aspirations had been realised, and that others, though not quite achieved, were now in view and might be expected soon to be achieved. Mr. Steuart Fotheringham replied in a happy vein.

Among other toasts submitted and warmly pledged were "Our Guests," by Mr. W. H. Massie, replied to by Mr. Grant Thomson; "The Landed Interest," by Mr. David P. Laird, and replied to by Sir K. Mackenzie; "Agricultural Colleges," proposed by Mr. McHattie, and replied to by Judge Macpherson; "The Press" and "The Clergy" were also proposed and responded to; and "The Chairman" was neatly and eloquently proposed by Mr. Mather, nurseryman, Kelso, and duly responded to. Proceedings of the afternoon and evening were of great interest and of much educational value, and must do much to stimulate greater efforts on the part of the members.



The Royal Horticultural Society's Subscription.

Although the Fellows of the Royal Horticultural Society at their meeting did not give effect to the views I expressed in the *Journal of Horticulture*, I do not think that one has much to complain of. The entrance fee agreed to is not a heavy one, and, as it is not to be levied from working gardeners, it will not press hardly upon a body of men who ought to be numbered largely among the Fellows of the society. The decision come to will not be likely to reduce to any extent the number of those who join the society, and it will, at the same time, add a considerable sum to its funds. The suggestion that those who wished the *Journal* of the society should pay an additional subscription would hardly have worked out well in practice, and it would not have helped the position of the Fellows at a distance from London, whose interests, thanks to your courtesy, I had an opportunity of advocating.—A FAR-AWAY FELLOW.

Exporting Plants to the Continent: An Inconvenience.

Having read your note on page 557 of Decemoer 17 with reference to the sending of flowers to the Continent, especially to Germany, I answer your question: "Are really healthy plants forbidden?" by saying "Yes." If England is not concerned with the International Phylloxera Convention, other countries are, and any parcel sent to Germany (or another European country) containing plants with roots will be examined in a special office for phylloxera before forwarding to the addressee. Many firms have had a very bad experience in this matter. I remember once that a German firm ordered a large quantity of rooted cuttings of Dahlia novelties (phylloxera certificate was enclosed), and after paying a large sum for the examination the plants were then forwarded. It may be mentioned that nearly all the plants were spoiled in consequence of being too long on the journey. That is the only reason why many German firms do not like to buy similar plants from England, and this must cause great loss to England's horticultural trade abroad.—FRANK KOEHLER, correspondent of "Die Gartenwelt."

The Gardeners' Association.

In the issue for February 11, "Provincial" has advanced certain remarks which, though excellent enough in their way, appear to me quite outside practical application and realisation. It is true enough that numbers of other professions have their institutes or guilds, to have passed the degrees of which, entitle the examinees to place certain letters to their names, and these are usually recognised as not only raising or assuring the status of the holders, but also as increasing the value of services rendered. Suppose for a moment that the friends of young gardeners are ready and able to pay for an increased cost of education and maintenance; supposing, also, that young men have attained to success and obtained the right to affix certain magical letters to their names, will employers evince an overwhelming desire to employ these highly-trained mortals? Not they! And then after this expenditure of time and money, what is the reward in the shape of income? Perhaps £60 to £100 per annum, and frequently a difficulty in obtaining this noble rate of remuneration.

It has been hinted that the proposed association would endeavour to obtain a higher rate of pay for its members. Very good project indeed! We shall all be agreed as to the merits of the case here. But those who pay the labour account may very truthfully say that their burden is already sufficiently heavy. If a cord is overstrained it breaks, and we may be sure that should a few individuals obtain more in payment there will be a less number to receive the money. Garden expenses are all too often looked upon as a necessary evil, and must be kept in check. Anything that tends to increase the expenses of private gardening is only so much inducement for employers to turn for their produce to the market grower, and many of them already say that they can purchase a great deal of garden produce much cheaper than they can grow it at home. In the face of this and the continued increase in size and numbers of market establishments, can it be expected that the private gardener's wages will be raised?

There is also the question of social status. What is it the gardener expects in this connection? Does he expect his employer to invite him to dinner? Of course not, though in

some cases it is possible the employer might be agreeably surprised to find his humble friend possessed of great mental and conversational power. That many persons look down upon the gardener as a mere servant is a well-known fact. Whether or not he is worthy as high a position socially as the farmer hovering on the verge of bankruptcy, or the trader whose life is one long struggle against insolvency, I neither know nor care. I do know which position is to be preferred, and after all, social status is largely a matter of self-respect. The individual who is willing to pull his hat-brim to all and sundry must be prepared for patronage, and many seem to enjoy it; thus the patron and patronised ought both to be content.—COUNTRYMAN.

Trade v. Private Exhibitors.

I am very glad to have a few more views from "E. M." on the above question. He says one would think the exhibition tents are monopolised by trade exhibitors from the fear in which they are held. Personally I don't speak from that standpoint by any means. I should welcome the opportunity of competition on the same footing as "E. M." boasts of. He says he can mention a dozen private growers who can buy more Chrysanthemum plants; who have more house room; in short, more of everything to compete with than the Trade. The very audacity! A mere dozen? I, or anyone else, can mention hundreds who *cannot*, for various reasons, which I cited in one of your previous issues of the *Journal*, and simply because a dozen can compete with any amount of success, he thinks it not worth while to advocate legislation for the benefit of the smaller man! He asks me the question whether I think we should see the same amount of quality in the Japanese blooms if trade exhibitors did not compete. My answer is Yes. At South Shields, I believe, every *open* class of any note is pounced upon by the Trade. I certainly cannot see the justice of such a state of things. The framers of the schedule ought to close the doors to the Trade except in cases of non-competitive exhibits; or otherwise put the competitions on more equitable terms. Not only do I complain of the Chrysanthemum question, but in many other cases the Trade are pitted against the private growers. It need not become an epidemic before being dealt with.—FAIRNESS.

Will you allow me a line or two in order that I might support "E. M."? Your correspondent "Fairness" does not seem to grasp this fact, namely, that if a class is *open*, anybody can compete in it, and if a trade grower chooses to run the risk of being defeated by a private grower, no one has the least semblance of a cause to complain against him. Is it not a fact that he runs a risk in thus competing, and do trade growers enjoy being beaten, even by private men better equipped than themselves? And has "Fairness" (his nom de plume is a misnomer) never thought that a trade grower (if he is a young man especially) takes a delight in exhibiting for the pleasure and honour of it, quite apart from any trade consideration? In short, has it never struck "Fairness" that for the time being the trade grower has become purely a devotee of the flower and nothing more? But the conclusion I draw from the letters of "Fairness" is that he wants prizes, and not honour or pleasure. If he finds he cannot compete in an open class, why enter it? Are shows run for the sake of individuals, for the sake of the "small man"? Surely not. There are classes for all.—SMALL MAN.

I was very much interested in the remarks of "Fairness" on this subject in a recent issue, but I should like to ask him what an *open* class is if it is not meant for the Trade? There would be no need of societies making open classes if it was not for the Trade exhibiting, as the amateur classes are open to all private gardeners. Surely, then, the Trade are well within their rights in competing in all open classes. I would like to ask your correspondent, who among us has done more to improve the Chrysanthemum as the Wiltshire grower tacitly referred to? And does "Fairness" think that those men who have done so much towards the cultivation of the flower should be debarred from showing?

I should further like to ask "Fairness" what the shows would be like were it not for the trade growers showing in the open classes? Take our Dahlia shows, for instance; what would they be if the Trade were to withhold their exhibits? Or again, take our Rose shows, and also the summer shows—what would they be without the Trade and such men as Mr. Cypher with the beautiful groups and specimen plants? I am sure we are indebted to the Trade for many improvements at our shows. I really think it is not so much a question of the Trade competing with the private grower as the private grower entering into the Trade classes; and if an exhibitor enters into those classes he must be prepared to face the competition of the commercial element.—G. W. DRAKE, Cardiff.

Protecting Plums against Frost.

I have read Mr. Willis's article page 110, on Plum culture, with much interest; but I should like to ask him and your readers, Are not culture, soil, varieties, manures, and chemical composition of the fruit of secondary importance as compared with protecting the embryo fruit buds at the blossoming period? Last year I remember going out one morning into my garden, while the greater number of varieties were in blossom, and finding not merely the corolla and stamens of the blossoms, but the embryo fruits burned black, and, when cut through, virtually calcined. I determined then and there to try some form of protection, and have recently procured from one of your advertisers closely meshed netting that will let air and light pass through, but will protect against frost. I cannot speak very definitely, as 'tis my first trial of these hoods, but may be able to have photographs taken of them for the *Journal of Horticulture*. The materials are damp proof, and after last night's storm I have had a fair trial of what they can stand that way. Of course, they are firmly and securely tied on all around the trees. I am trying them on Pears, Plums, Figs, Apricots, Peaches, and Nectarines—the latter on walls. It is manifestly useless and vexatious to grow these fruits in the open garden if one night's frost spoils the labour, expense, and care of twelve months.—J. MURPHY, Clonmel, Co. Tipperary.

Combating Chrysanthemum Rust.

With reference to Chrysanthemum "rust" (page 114), the way to get rid of it is (to use a borrowed expression) "as plain as the road to market"—once you know how. In the first place, Mr. Massie has explained how the fungus in its fruiting stage (which causes the rusty appearance) is propagated by the spreading of myriads of minute spores. Also, that there are resting spores, which lie dormant for a time before producing the active fruiting spores. And the latter fact has led many to think that they have got rid of the "rust," when it has really existed in their stock in an invisible form all the time. So one hears of it "being in the air," or "blown in from the surrounding woods." When the cuttings have been in the frame about three days I take a tiny drop of methylated spirit and a small camel-hair brush, and, having taken the glass off the cutting frame, I take up the pots one by one, examine the under sides of the leaves of the cuttings, and whenever I see a "rust" spot I dab it with the spirit, taking care to wet the pustule right through. This hint was given by Mr. Molyneux years ago. Before placing the cuttings back in the frame I dust them through with Anti-blight powder from a Malbec bellows, also dusting the inside of the frame. This effectually disposes of all the spores then present.

But I have purchased cuttings that in less than a week have been so smothered with rust as to be fit for nothing but the fire. Fortunately, there is plenty of clean stock to be got nowadays. The whole of the soil, from the cutting-pot to the final, is dressed with Veltha powder. This, I believe, disposes of the resting spores. But as there is always a danger that some portions of soil may have escaped this Veltha dressing, I occasionally dust the plants through with the Anti-blight powder in the latter part of the summer, and both before and after housing. I may say that since using Veltha in the soil I have never seen the "rust" spots re-appear in the summer, but think it best to be on the safe side.

A friend of mine who was growing a large batch of Chrysanthemums thought my system of dabbing the cuttings and young plants with spirit too tedious; so, finding that he had a mild attack of "rust," he dipped the young plants in a solution of Veltha emulsion; this, and the use of Veltha powder in the soil, kept his stock quite clean for the rest of the season. For my own use I have stuck to the powder and bellows ever since they were recommended in these pages by Mr. Robt. Fenn.—R. BARNES, Malvern.

COLLARETTE DAHLIAS.—"Le Jardin" for February 5, 1904, figures in colour print six varieties of these novelties, which are being sent out by MM. Rivoire and Sons.

BOTANISTS MAKE BAD GARDENERS.—So I have read, and this, too, from the Hub of the Universe, where the toddlers on the streets wear spectacles and talk in Emerson and Latin. Yea, even at the very door of Jackson Dawson, Robert Cameron, Ben Watson, and Professor Sargent! Is it in mockery that some of the garden botanist "duffers" have been and gone and gotten up a society of their own, called the "Society for Horticultural Science," and established it on a national, not a local, basis? Indeed it isn't. Boys, take an old man's advice: Let us try to creep in under the roof of the scientists and learn something and be somebody, rather than sulk and become hayseeds in the land.—WILLIAM FALCONER (in "Florist's Exchange").



Pear, Beurré Rance.

Often reaching to a large size, this is one of the best late Pears, and is a general favourite. Though grown as a bush (preferable to a pyramid) it is safest, and does best on a wall, with a south or west aspect for choice. This Pear requires the double graft. It grows freely, and must be occasionally root-pruned to prevent gross wood, and to prevent the fruits from cracking. It is in season during December, and keeps in Al condition till the end of March, the flavour being sweet, and the consistence melting and juicy. Dr. Hogg thought there could be no doubt that it was raised by Abbé Hardenpont, of Mons, about 1762.

Tomato Culture in Guernsey.

Mr. Richard Vincent, jun., of White Marsh, Md., U.S.A., whom we met here in London last summer, gave, at a recent meeting of the Baltimore Gardeners' Club, of which he is president, a lecture on what he saw on the Island of Guernsey during a visit there. In part he said: "The growing of vegetables under glass in the Channel Islands for the English markets has reached an enormous extent. No longer does the cow, or, rather, the dairy, hold sway. The dairymen have sold their cows, bought glass and other material suitable for greenhouse building, according to their ideas, and as a consequence, no matter where one gazes, there are seen glass houses filled at this time (July 15) with Tomatoes; some with the main crop picked, but in a majority of cases the Tomatoes are just in their prime.

"According to my ideas, their manner of building greenhouses is not up to date; they are behind the times to a certain extent. Their houses are much like those we built 35 or 40 years ago in this country, and not anything like the houses we are now building. All of their houses have too much lumber and are too heavily constructed. The bars are all plain, or to a great extent so, no bars like ours being used, or, rather, grooved or drip bars; a plain, rather weak bar being their model, therefore requiring more support against the wind storms, which they say would crush their houses. The rafters they use are very heavy—about every six to eight feet, then two heavy purlins to each side, with a heavy crossbar extending across the house from rafter to rafter—make considerable shade. These houses vary in length from very short ones to those 400ft or more, and are in blocks of from two to twenty houses, with an average width of about 30ft. A great many of them have strongly built stone walls. Among them we found several very large lean-to houses, also built in the old style of half a century ago, now obsolete with us, the glass used being mostly about 10in by 14in and 12in by 16in, single thickness, embedded in putty, zinc points being employed.

"A great many of the growers there have no heat in their houses, while others have no water system, making considerable difference as to the time the crop or crops are sown, and a large number of them make the Tomato a second or main crop. With some, Cucumbers is the crop relied upon. The houses are sown or planted early with Radishes, Peas, Potatoes, Beans, Beets, &c., for the English markets. Tomatoes largely predominate over the Cucumbers.

"The plants of both are sown early and grown in pots until the other crop is taken out; sometimes they are put in position before the other crop is entirely taken away, every other row or plant being removed. The Tomato plants are mostly trained to single stems unless there is space for other limbs. When two or more limbs are used, these plants are staked or tied to wire overhead, most of the houses being built high enough to give each stem a length of 7ft or 8ft. Some growers do not plant out, but grow in large pots. The Tomatoes are planted from 12in to 18in apart in the rows, with a width of from 2ft to 3ft crossways, the pollination being done by shaking the plants when dry, or the disbudding distributing it largely. The reason for growing in pots, adopted by some growers, is that they can control the growth better, both as to watering and the application of fertiliser, so that they do not get the rampant growth of stems, as when planting out in the rich ground. And, while it entails more work, it really, they claim, brings more money to pay for it.

"The growers use a very strong compost for the crops grown previous to the Tomatoes or Cucumbers, spading the material in deeply. Hence the objection, by some cultivators, that those planted in the ground get too much food at the start, making them long and rank. They would much prefer them not to grow so rank, but stimulate later on, as we found some of them doing with concentrated fertiliser. We also found houses that

had fruited out, being replaced with another crop that would come on for late autumn or winter. This, and the very early crop, would be the one that would be apt to interest our people to grow; the midsummer crop would not do so, as there would not be much in it when it could be picked from the field. But such Cucumbers as they raise, we believe, would find a good market with our people at all times. As for length and beauty of finish, and their milder eating qualities, they would appeal to the epicure at all times.

"Talking with one grower who was growing one that originated on the islands, in regard to varieties, he said it is rather inclined to grow crooked, but that some of them gave more weight than smooth varieties. It seemed as if quantity more than quality was what the majority were after. Yet some of the growers appear to be growing a good, smooth, satisfactory variety.

"To estimate the enormous quantities of Tomatoes grown on the Island of Guernsey one needs only to stand on the wharf on a morning when they are shipping, as we stood there one Tuesday morning in the middle of July. There was a large number of waggons, each loaded to its utmost capacity, and two good-sized steamers were being loaded for the English markets with the baskets of produce. The English railroads and steamers return all empties. The Tomatoes are shipped from the island in handle baskets holding about 14lb each. Fruit the week previous had brought on an average 3½ cents a pound, making it about 4s. 6d. a bushel, according to our calculation. As labour is cheap there, when required, this leaves, after paying all shipping expenses, commission, &c., a fair margin, even with the large growers who have to employ labour. In the smaller establishments the work is mostly done by the man himself, wife, and children.

"One person can attend to a good-sized establishment of this kind. That some of them are making money was shown by my informant, who drove me around to various places, and the fine new homes that were being built since they abandoned the cow and put her price in glass houses were evidence enough that such is the case."

Societies.

R.H.S. Scientific Committee, February 9th.

Present: Dr. M. T. Masters, F.R.S. (in the chair); Messrs. Michael, Baker, Druery, Veitch, Worsley, Bowles, Saunders, Keeble, and Douglas; Dr. Ridley, Revs. W. Wilks and G. Herslow, Hon. Sec. Visitor, Mr. J. Hickley.

Beans defective.—Mr. Horsley of Winsford, Cheshire, sent some mould in which beans had been grown under glass, but failed. The beans were old. It was thought that the soil was too light, with possibly deficient light, and the beans being old might have been difficult to germinate. Mr. Baker has undertaken to investigate into the matter.

Coloured photos of Orchids.—Mr. Hickley, natural colour photographer of Kelso, Bassett, Southampton, exhibited some very beautiful transparent illustrations of Orchids in their natural colours. They were effected by a special process of Mr. Hickley's on plates sensitive to the primary colours—red, green, and violet; but the special treatment by which the excellent results were secured is not yet patented. It was enquired as to the cost of such for lantern slides. These would be from 5s. 6d. to 10s. 6d. A vote of thanks was given to Mr. Hickley for his interesting exhibitions and description.

Tropæolum tuberosum as edible.—Mr. Bowles reported that the result of his trial was that while they were edible, he could not at all recommend them as palatable.

The Horticultural Club.

The annual meeting of the members of this club was held on Tuesday, the 9th inst., at the Hotel Windsor, and was followed by the annual dinner under the presidency of Sir John D. Llewelyn, Bart., at which about eighty members and guests, including on this occasion a literally fair sprinkling of ladies, were present. At the meeting a very satisfactory report of the progress of the club was read by the chairman, embracing not merely proofs of the increase of membership, but also abstracts of the various papers read during the year by some of the highest authorities in the horticultural world, attesting not only the social value of the club but its practical value as a factor of instruction and progress. The membership is now about 140, as compared with about half that number a couple of years back, and it is hoped that in view of the accommodation afforded to those joining it, by the possession of comfortable quarters always available at the Hotel Windsor, its value as the recognised social centre of the Royal Horticultural Society will be still further utilised by the ever-increasing number of its Fellows.

The dinner, which was capitally arranged by the hon. secretary, Mr. E. T. Cook, was enlivened by the presence of the Georgian Singers under the direction of Mr. Harry J. Stubbs, and their repertoire included a number of most charming songs

rendered in an equally charming way, both in the shape of quartettes and solos, jovial and serious. Mr. C. T. Drury, V.M.H., gave a humorous reading of his own, entitled "Modern Chivalry," which was extremely well received, and in every way the meeting was pronounced to be one of the greatest social successes of the club. After the usual patriotic toasts, Mr. George Gordon, V.M.H., in a felicitous speech, proposed the toast of the Royal Horticultural Society, depicting in graphic terms its vicissitudes in the past and its triumphant progress of recent years, as attested at the annual meeting held that day at the Drill Hall, and the credit was given which was certainly due to the Horticultural Club, that at the darkest period in the history of the society it was within the walls of

it was evident that the botanical knowledge of the members was not in a very advanced state—a state of affairs which, considering the facilities existing in the town for acquiring that knowledge, is much to be deplored. The meeting concluded with a hearty vote of thanks to Mr. Batchelder. Ipswich summer show is definitely fixed for July 6.—E. C.

Gardeners' Royal Benevolent Institution (Liverpool Auxiliary).

Seldom has a function passed off more successfully than the annual smoking concert organised by the excellent committee, and which was held in the famed Bear's Paw Restaurant, Lord Street, Liverpool, on Saturday evening last. Mr. C. A. Young, of the Floral Nurseries, West Derby (who is chairman of management), occupied the chair, and was supported by Mr. John Dickson (Messrs. Dicksons, Chester), Mr. N. T. Barnes (Eaton Hall), Mr. B. W. Ker, Mr. H. Ranger (Messrs. R. P. Ker and Sons), Mr. H. Middlehurst, Mr. J. Finnigan, Mr. T. Foster and Mr. W. Mercer (chairman and vice-chairman Liverpool Horticultural Association), Mr. A. J. Crippin (treasurer), Mr. R. G. Waterman (secretary), and Mr. R. Pinnington (representing the Horticultural Press), Mr. B. Ashton (Lathom House), Mr. J. Gibbins (Croxteth Hall), Mr. J. Guttridge (Waver-tree Botanical Gardens), Mr. B. Cromwell, Mr. J. Stoney, Mr. G. Haigh, Mr. T. Carling, and a very excellent attendance of gardeners, trade, and friends.

A portion of the programme having been gone through, the chair was occupied by Councillor W. Watson Rutherford, Esq., M.P., ex-Lord Mayor of the city. Mr. Rutherford made a most forcible and spirited appeal on behalf of the Institution, stating that there was no business where organisation was not beneficial, and there should be no need for people to go to the workhouse. He was somewhat surprised that so few pensioners were on the books, and that there were some twenty persons (some blind) who could only be temporarily relieved at the last election instead of at once being fully relieved. This he considered wrong, and for that reason it gave him the greatest pleasure to

be present as their chairman to plead for all possible help from the Liverpool centre. He considered it the duty of gardeners and their employers to take a greater interest in the work. If he could only see more working gardeners subscribing he would considerably increase his own quota at the end of twelve months. Mr. R. G. Waterman proposed thanks to the chairman, which was seconded by Mr. J. Dickson and Mr. H. Middlehurst.

The statement of accounts for the year 1903 showed a balance of £2 19s. 8d. in treasurer's hands after remitting to the Institution a sum of £37 17s. The new subscribers announced are Lady Tate, F. H. Gossage, Esq., Councillor Utley, Hull Chemical Company, a further donation of one guinea from Mr. R. W. Ker (whom many were sorry to see absent), and three guineas from the chairman, W. Watson Rutherford, Esq., M.P. The programme was a high class one, and reflected much credit on Messrs. Young, Waterman, Finnigan, and the excellent working committee. Mr. C. A. Young presented Mrs. Rutherford with a handsome bouquet.—R. P. R.

Royal Gardeners' Orphan Fund.

The annual general meeting of the Orphan Fund was held at the Cannon Street Hotel, London, on February 12. In the absence of Mr. H. B. May, of Edmonton, Mr. W. Poupart, Twickenham, was voted to the chair. He first of all expressed the sympathy of the meeting for the absent chairman, and after the business part was completed Mr. H. J. Veitch proposed that a telegram be despatched to Mr. May, and this was done.

The formal business having been transacted, the chairman briefly commented on the report, and proposed the adoption of it and the statements of accounts. He regretted that contributions had fallen off, and mentioned that the objection was sometimes raised that there was no election; but he failed to see what difference it made to exercise the right of voting so long as the orphans were elected. The expenses of an election would almost keep another child. Mr. Harry J. Veitch, who seconded, said that 200 children had benefited since the Fund was inaugurated, and so much as £12,000 had been expended. The report was carried unanimously.



Pear, *Feuré Rance*.

that club that a scheme of regeneration was formulated and started with the brilliant results in question. Mr. A. H. Pearson responded in an equally happy vein.

The toast of the club itself, proposed by the president, Sir John Llewellyn, Bart., was naturally both well proposed and well received. Mr. George Monro responding in a humorously humble way as an outsider, which could hardly fail to tickle the fancy of all present who recognised his value as a member and his general position in the horticultural world. Mr. Harry J. Veitch proposed the health of the president in his genial way, and the president responding, took the opportunity of referring to Mr E. T. Cook's invaluable services as hon. secretary, and proposing a special toast on his behalf which was cordially received with the usual honours. A hearty vote of thanks was finally accorded to Mr. Harry J. Veitch and Mr. George Monro for the lavish provision by the former of floral table decorations, and by the latter of a generous supply of fruit, embracing Peaches, Nectarines, and Plums from the Cape, which were of considerable interest as regards their novelty as well as merely gastronomically.

Ipswich: Floral Organs and Structures.

The usual fortnightly meeting of the Ipswich Mutual Improvement Society was held on February 4, the president (Mr. R. C. Notcutt) occupying the chair. Under the title of "Floral Organs and Structures," Mr. S. J. Batchelder, lecturer on botany at the Ipswich Higher Grade School, gave an interesting address on the classification of plants. The lecturer first of all briefly reviewed the earlier attempts at classification down to the time of Linnaeus, who he said was the first to introduce a system of any merit. The Linnaean system, however, was of an entirely artificial character, and had now been superseded by a natural system of classification, founded upon the systems originated by Jussieu and De Candolle. Mr. Batchelder then proceeded to expound, by the aid of diagrams, blackboard illustrations, and actual specimens of flowers, the differentiations of floral structure existing in the classes, sub-classes, series, and natural orders, and endeavoured to show the means by which a botanical student could, by the aid of works of reference, succeed in finding the natural order, and ultimately the genus and species of a plant previously unknown to him. In the discussion which followed

Mr. George Gordon proposed, and Mr. Rochford seconded, that Earl Carrington be elected a vice-chairman. This was carried. The following officers were re-elected, and thanked for their past services: Mr. N. N. Sherwood, as treasurer; M. Rowan, as auditor; G. Gordon and J. F. McLeod as committeemen; and in the place of Peter Kay, H. R. Richards, and George Nicholson, who retire from the committee, the following were elected: W. Bull (Chelsea), R. Hooper Pearson, and W. P. Thomson. Mr. Brian Wynne was elected secretary at an increased salary, viz., £125, instead of £100. The following were appointed scrutineers of the ballot: Messrs. Assbee, Lyon, Poupart, and Reynolds.

The only local secretary present was Mr. J. Miles, from Southampton, who, in seconding the re-election of the members of committee and the secretary, expressed his thanks to that body, and also to the secretary for the kindness he had always received at their hands. At five o'clock the result of the poll (which was closed at 4.30) was announced as follows:—1, George James Lammas, 367 votes; 2, Harry George Pantling, 361; 3, Reginald George Pantling, 339; 4, Margaret Lammas, 328; 5, Louie Witcher, 230; 6, Mary E. Pretty, 229; 7, Robert Arthur Pretty, 228; 8, Frank Wm. Sonntag, 214; 9, Henry Gillet, 213; and 10, Hilda Blanche Ayling, 186. Nine orphans failed to gain election. The secretary's address is 30, Wellington Street, Strand.

REPORT OF THE EXECUTIVE COMMITTEE.

The executive committee in presenting their sixteenth annual report, congratulates the supporters of the Fund on its continued prosperity and usefulness, as although from causes too well understood by all, they are but able to show a trifling increase over the previous year's receipts from all sources, other than legacies, they have been enabled to increase their disbursements in the form of allowances and grants in aid from £1,092 15s. in 1902 to £1,255 10s. in 1903—a total increase of £162 15s.

The committee have to deplore the falling off in annual subscriptions, as shown in the accounts presented, and the more so as the deficiency mainly arises from the non-renewal of 5s. subscriptions, but they hope and believe that when this fact becomes known and the present dearth of money passes away, these subscriptions will be renewed and increased in number. They cannot believe that those in whose interest the Fund was established are indifferent to its claims upon their support. Many there are, undoubtedly, who feel that they cannot subscribe 5s. annually, and these may be usefully reminded that all contributions are voluntary, and that the payment of a subscription one year does not imply that it must be continued in the next.

The committee gratefully acknowledges the receipt of a legacy of £25 from the executors of the will of the late Mr. A. F. Osler, of Birmingham; and also the kindly generosity of the Earl of Ilchester in throwing open his beautiful gardens at Holland House on the occasion of the Royal Horticultural Society's exhibition being held there, by which means the Fund benefited to a substantial amount. The legacies left to the Fund by Mr. A. H. Smee and Mrs. John Wills, amounting to £350, have been invested in the purchase of £380 12s. 2d. 2½ per Cent. Consols.

The committee keenly regrets to record the loss which the Fund has sustained by the death of two of its founders, Mr. A. F. Barron, of Chiswick, and Mr. James Smith, of Mentmore. Of Mr. Barron's devotion to the Fund while its secretary for eleven years it is not possible to feel other than the keenest

appreciation or to speak other than in the highest terms; while of Mr. Smith it may be said that for several years after the establishment of the Fund he served on the committee, and until his death was a zealous collector in aid of the charity whose interest he had so warmly at heart.

The number of orphans who have been elected to receive the benefits of the Fund during the past fifteen years is 179, and the total amount expended in allowances during the same period is £12,192 17s. 6d. At the commencement of the year the number of children receiving the full allowance was seventy-three, and twenty-four were added to the list by special resolution at the annual meeting. The number on the Fund now is eighty-eight, and ten will be added by election this day. Most of the candidates have been in receipt of compassionate allowances since their nominations were accepted; and while the committee would have been glad if they could have seen their way to put a larger number than ten on the Fund, prudence dictates the safer course, especially having regard to the fact that as a result of the beneficial alteration made in Rule XIII. at the last annual meeting they have extended the payment of allowances in some cases for varying periods beyond the fourteen years limit.

The committee again gladly tender their warmest thanks to the local secretaries for valued services rendered, and also gratefully acknowledge the zealously continued exertions on behalf of the Fund made by gardening friends in various centres, and could heartily wish that their number could be increased. The annual festival held on May 5, under the presidency of the Right Hon. the Earl Carrington, P.C., again proved an unqualified success from every point of view, and as a slight acknowledgment of the committee's appreciation of the noble chairman's kindness on that occasion, have the greatest pleasure in recommending that Earl Carrington be this day elected a vice-president.

It has been arranged for the next annual festival to take place at the Hotel Cecil on Tuesday, May 17, and the committee are highly pleased to make the announcement that Sir Trevor Lawrence, Bart., K.C.V.O., president of the Royal Horticultural Society, has most kindly promised to preside on that occasion. As the Royal Horticultural Society will this year celebrate its centenary, it is especially gratifying to the committee that its president should have so kindly accepted their invitation, and trust that all friends of the charity will rally round them in support of so distinguished a patron of horticulture.

The members of the committee who retire by rotation are Mr. J. Assbee, Mr. W. H. Cutbush, Mr. G. Gordon, Mr. J. F. McLeod, Mr. T. A. Morris, Mr. G. H. Richards, and Mr. W. Roupell; and Messrs. Assbee, Cutbush, Gordon, McLeod, Morris, and Roupell being eligible, offer themselves for re-election. Mr. G. H. Richards does not offer himself for re-election, and Mr. P. E. Kay and Mr. G. Nicholson having resigned, Mr. William Bull, Mr. R. Hooper Pearson, and Mr. W. P. Thomson are nominated to fill the vacancies thus created. The committee have much pleasure in recording their appreciation of the admirable manner in which Mr. William Sherwood discharges the duties of treasurer on behalf of his father (absent abroad), and in anticipation of Mr. Sherwood's early return, as all hope, in renewed health and vigour, he is again nominated for re-election as treasurer. The committee have again pleasure in thanking Mr. M. Rowan and Mr. P. Rudolph Barr for their most careful audit of the accounts of the Fund. Mr. Rowan is the retiring auditor, and is nominated for re-election.

CASH STATEMENT FOR THE YEAR ENDING DECEMBER 31st, 1903.

RECEIPTS.					£	s.	d.	£	s.	d.
To Balance last account	..	..	..	..	1,198	17	4			
„ Subscriptions, general	..	..	..	..	252	5	11			
„ „ local secretaries	..	..	..	..	47	2	1			
								299	8	0
„ Donations, general	..	..	..	..	237	14	7			
„ „ local secretaries	..	..	..	..	16	8	10			
								254	3	5
„ Legacy, Mr. A. F. Osler	..	..	..	..	25	0	0			
„ Emma Sherwood Memorial	..	..	..	..	13	0	0			
„ Annual dinner	..	..	..	..	681	2	0			
„ Advertisements in list of subscribers	..	..	..	..	29	11	0			
„ Sundry receipts	..	..	..	..	4	10	0			
„ Dividends on Stock and interest on deposit	..	..	..	..	319	4	11			
„ Income tax returned	..	..	..	..	20	4	4			
								£2,845	1	0

EXPENDITURE.					£	s.	d.	£	s.	d.
By Allowances to orphans	..	..	..	..	1,161	10	0			
„ Grants in aid	..	..	..	..	76	0	0			
„ Emma Sherwood Memorial	..	..	..	..	13	0	0			
								1,255	10	0
„ Annual dinner	..	..	..	..				174	4	4
„ Secretary's salary	..	..	..	..				100	0	0
„ Printing and posting list of subscribers	..	..	..	..				25	9	7
„ Printing and stationery	..	..	..	..	31	7	2			
„ Advertising	..	..	..	..	4	13	5			
„ Rent and Insurance	..	..	..	..	26	1	0			
„ Annual, general and committee meeting	..	..	..	..	22	4	8			
„ Postages	..	..	..	..	8	5	11			
„ Bank charges	..	..	..	..	2	12	0			
„ Sundry expenses (petty cash)	..	..	..	..	2	5	2			
								97	9	4
„ Purchase of £380 12s. 2d. 2½% Consols	..	..	..	..				350	0	0
								2,012	13	3
„ Balances: Cash at bank	..	..	..	..	412	14	4			
„ Cash on deposit	..	..	..	..	325	0	0			
„ Cash in hand	..	..	..	..	94	13	5			
								£32	7	9
								£2,845	1	0

NOTE.—INVESTMENTS:

3 per cent. London & County Consolidated Stock	..	..	..	..	£7,240	15	10
3 per cent. Canada Stock	..	..	..	..	2,000	0	0
L. & N.-W. Railway Preference Stock	..	..	..	..	340	0	0
Great Indian Peninsular Railway Guaranteed 3 per cent. Stock	..	..	..	..	514	0	0
Thomson Memorial Trust:							
East Indian Railway B. Annuity of £14, cost	..	..	..	..	430	11	0
2½ per cent. Consols	..	..	..	..	380	12	2

Having inspected the securities and examined the books and vouchers supplied to us, we hereby certify the above account to be correct.

February , 1904.

P. RUDOLPH BARR } Auditors.
M. ROWAN }

National Chrysanthemum.

The executive committee met at Carr's, 265, Strand, on the 8th inst., and as it is one of the most important in the year there was a large attendance. The minutes of the last meeting having been read, together with some correspondence (including a letter from the Crystal Palace confirming the dates of the shows in the present year, which were recently communicated to the gardening papers), the secretary enumerated the changes made in the executive committee at the annual general meeting, and also submitted an interim financial statement showing a balance of £117 18s. 8d. at the bank, the treasurer reporting that a considerable proportion of the arrears had been paid. It was unanimously agreed that the secretary be paid the same amount of salary as in 1903. A satisfactory agreement with the Crystal Palace Company was produced, and the secretary was instructed to sign the same on behalf of the society. An election of six members of the Floral Committee, who retire by rotation, then took place, and Messrs. Howe, Crane, Ingamells, Simmons, and Kendall, outgoing members, were declared duly elected, Mr. Moorman taking the place of Mr. Pulling, who retired. The Classification Committee was re-elected with the addition of Messrs. Ingamells and Gover, who take the places of two members who retired. The Schedule Revision Sub-committee was re-elected, also the Finance Sub-committee and the Arbitration Committee.

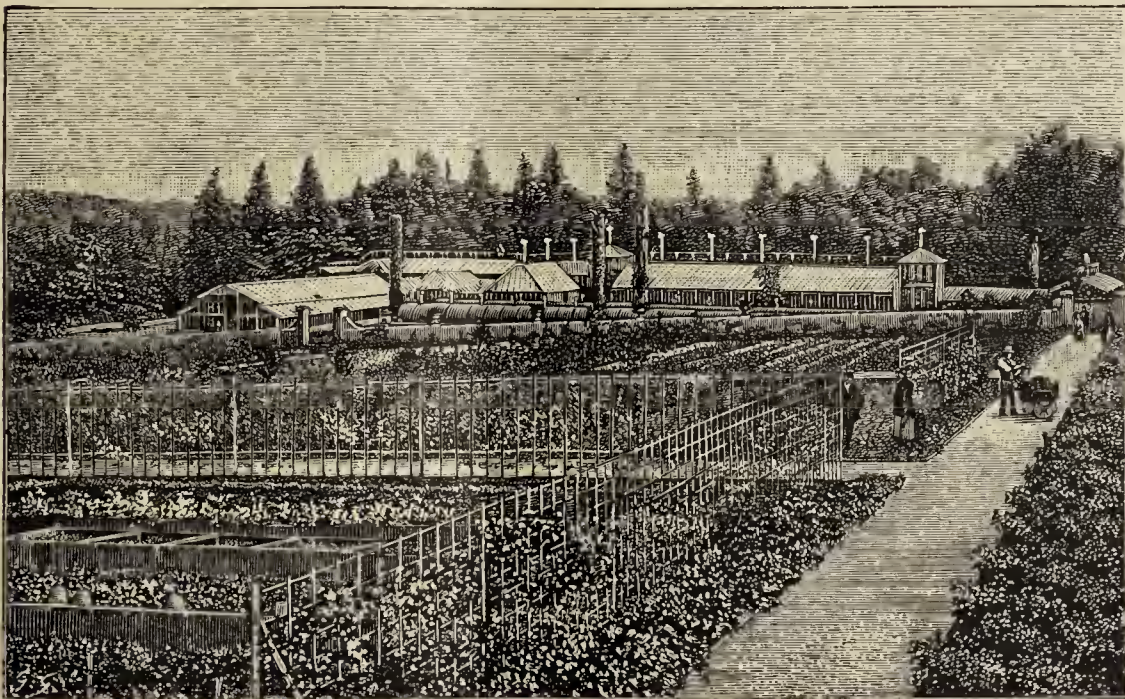
The Schedule Revision Committee brought up the revised

history, from which could be easily traced how remarkably rapidly the luscious fruit had grown into popularity, the lecturer added that home-grown fruits are by far the best, and are able to command the best prices, and also that the medium-sized Tomatoes find the most ready sale. The debate was enthusiastically taken up, and the best thanks of the meeting were accorded Mr. Waller for his splendid lecture.

The "Gardeners'" dinner took place at Barry's Restaurant on Wednesday, February 10, at 7.30 p.m., when E. H. Battram, Esq., occupied the chair, supported by the two hon. secretaries (Messrs. H. Gillett and J. Julian), Mr. H. R. Farmer, Mr. T. Malpass, and a large number of the leading craft of the district. After a splendid dinner had been thoroughly enjoyed a short toast list was gone into, and several influential gentlemen contributed towards the musical part of the programme. A most enjoyable evening was spent, and terminated with a vote of thanks to the chairman, who, in responding, said a few encouraging words to the younger fraternity, emphasising the fact of the difference in both life of thirty years ago and that of to-day. A cordial vote of thanks was passed to the hon. secretaries, who had done all that was possible to make the occasion a success.—J. J.

Bristol : Bouquet-making.

A most successful meeting of the Bristol and District Gardeners' Mutual Improvement Association was held at St. John's Rooms on Thursday evening last, Mr. E. Poole, F.R.H.S., presiding over a good attendance. The lecturer for the evening was Mr. Powell, acting as representative from the Reading Gardeners' Association. His lecture was entitled "Bouquet Making," and Mr. Powell added much to his very able lecture by demonstration. He claims that the floral art was most essential for the gardener to master, and that all young gardeners starting their career should endeavour to make themselves as perfect as they could. Mr. Powell was practical in his demonstrations, starting with the foundation of the bouquet, wiring flowers, and arranging them so as to have the most pleasing effect. His bouquet was handed to the audience. Sprays and buttonholes also received his attention, and the many hints given were eagerly taken by his very attentive hearers. Prizes for three Cyclamens were awarded to, 1st, W. A. F. Powell, Esq. (gr. Mr. Raikes); 2nd, P. J. Worsley, Esq. (gr. Mr. Whear); and 3rd, to J. C. Godwin, Esq. (gr. Mr. McCulloch). Certificates of Merit went to Howell Davis, Esq. (gr. Mr. Curtis) for *Cattleya Trianae*, Miss Pease (gr. Mr. L. Gassick) for *Dendrobium Pierardi*, and to Henry Derham, Esq. (gr. Mr. Sease) for a well-grown *Primula*.—H. K.



Gouville Garden.

schedules of prizes, showing that, as instructed, they had added the sum of £50 to the November schedule. The various alterations and additions in the schedules recommended by the sub-committee were read by the secretary and passed. In reference to the 110 special prizes of 5s. each for the best blooms of certain named varieties the committee confirmed the action of the Schedule Revision Committee in that the blooms should be selected from the whole of the competing stands, exhibitors being also at liberty to stage blooms by themselves if desirous to do so. A good deal of discussion took place over the entrance fees charged last year, which led to their material reduction. The secretary announced that the Crystal Palace Company would give a special first prize of twelve guineas in the great vase class; that the Ichthemic Guano Company (W. Colchester), Ipswich, would give a challenge trophy value eight guineas, and a first prize of £7 in the class for 6 vases of incurved blooms; that Mr. Wm. Seward, of Hanwell, would give £5 in four prizes for 12 blooms of incurved Chrysanthemums raised at Hanwell, the names of which appear in the schedule. It was resolved, on the recommendation of the Finance Sub-committee, that six small silver medals be balloted for by affiliated societies qualified to take part in the ballot. It was resolved that a register of new varieties be set up, and Mr. C. Harman Payne consented to act as registrar. A vote of thanks was passed to the chairman, after a sitting of three hours' duration.

Cardiff : Tomato Culture.

A meeting of the Cardiff Gardeners' Association took place at the Grand Hotel on Tuesday, February 9, Mr. H. R. Farmer presiding. Mr. F. Waller, Cucumber and Tomato grower to Messrs. Nurton and Co., Dynas Powis, delivered a highly interesting lecture on "The Culture of Tomatoes." Dealing with its

Croydon : Annual Dinner.

A very marked and emphatic success was achieved by the members of the Croydon Horticultural Improvement Society at their fourth annual dinner, held at the Greyhound Hotel on Wednesday week. There was a large company present, and the banqueting hall of the Greyhound looked its best, for the tables, as must be expected, were covered with choice flowers, among those who contributed to a very charming effect being Messrs. J. R. Box, T. Butcher, E. Kromer, A. Jennant, H. Hyde, W. Bentley, A. Edwards, and Duprés and Co. Mr. C. H. Curtis proposed a toast to the society, Mr. H. Boslier, the hon. sec., responding; and Mr. J. Gregory, chairman of the committee, gave "Kindred Societies." The president (Mr. J. J. Reid) presented to Messrs. A. W. Middleton and T. W. Briscoe the certificates of merit and prizes awarded them in the essay competition, and also announced his wish to give two more prizes during the coming year. The toasts of "The Visitors" and "The Chairman" concluded the list, the chair during the second part being occupied by Mr. Gregory. During the evening musical selections, &c., were rendered.

GOUVILLE GARDEN.—The main feature of interest in the illustration of this French garden is the handsome trellises for fruit trees. For that reason alone it is of value in this place, and it will be seen that the height of the trellises is higher than those usually erected in our own gardens. There is something to be said both for and against this, but principally in favour, we think. The training of fruit trees in many French gardens is more carefully performed than even in our own land.



Fruit Forcing.

PEACHES AND NECTARINES: EARLIEST HOUSE.—

Where the shoots reserved at the base of the present bearing wood are sufficiently started, they should be tied down, so as to give them the desired inclination, taking care not to bring them too sharply to the branches, nor endeavour to tie them until they are sufficiently advanced to allow of the operation being performed without snapping off their points. The terminal growths of leading branches should be trained in their full length, pinching the laterals to one leaf as produced. Growth for furnishing branches also require to be trained in without stopping, tying and regulating them as they advance, in doing which leave plenty of room for the swelling. In laying in young growths from extensive branches allow a distance of 12in to 15in between them, so that the foliage will receive plenty of light and air. Shoots retained to attract the sap to the joint must be kept closely pinched to one leaf after they have previously been stopped at the third joint or to that with a good leaf.

MAKE AN EXAMINATION OF THE BORDER every fortnight or three weeks, not being deceived by the surface looking wet from syringing, and supply water or liquid manure to weakly trees thoroughly whenever required. This procedure is better than having stated times for watering, for needless supplies of either water or liquid manure only tend to make the soil sodden and sour, while neglect of affording moisture retards growth



Bruce's Flower Holder, No. 1.

and favours attacks of red spider. Syringe the trees in the morning and afternoon to keep this pest in subjection, and for it and aphides apply an insecticide—petroleum emulsion properly diluted being effective and safe. The temperature should be maintained at 60deg to 65deg by artificial means, a fall to 55deg on cold mornings being much better for the trees than sharp firing, which only induces attenuated growths and favours insects.

TREES STARTED AT THE NEW YEAR.—These will now require attention in disbudding, doing it gradually, removing the strongest and ill-placed, retaining a good growth at the base of each current bearing branch, and a shoot on a level with or above the fruit. Thinning the fruits must also be attended to where too thickly placed, by first removing the smaller and those on the under side of the branches; but avoid wholesale thinning and disbudding, proceeding on the principle of a little and often. A temperature of 55deg at night in cold weather, 60deg when mild, 60deg to 65deg by day artificially, advancing to 70deg to 75deg from sun heat, and free ventilation from 65deg. Syringing the trees must be practised morning and afternoon, except when the weather is dull, when an occasional syringing and damping of the paths and borders in the morning and early afternoon will be sufficient.

LATE HOUSES.—The buds on these are much too forward where the roof lights are fixed, there being quite a fortnight difference between them and those which have been exposed since the fall of the leaf. All pruning and readjustment of the trees on the trellises must be completed without delay. Where the lights are off they need not be replaced until the buds show colour. In other cases ventilate freely, merely excluding frost, or not that, as the buds take no harm until they are swelled so as to show pink or red. The pruning must be completed in the case of trees in unheated houses before the buds are much advanced and swelling, and they cannot be kept too cool, as late blossoming is an important matter, the spring frosts and dull weather at the time of setting often proving disastrous to the crop. Indeed, unheated houses are not advisable, especially in cold localities. Fixed roofs are a still greater mistake, as the blossoms come on too rapidly in seasons like this, and they often have to struggle with a close, moist atmosphere and a low temperature when they should be setting. A little heat during flowering does much towards ensuring a good set, and in late summer a gentle artificial heat does much in ripening the fruit and maturing the wood. Examine the borders, making sure that there is no lack of moisture. If the soil has left the walls loosen it with a fork and close the interstices so as to make the water go through all parts of the borders, and thoroughly moisten them from the surface down to the drainage.

LATE VINERIES.—The mild weather has not made much difference in the trees, they appearing to take what they are all the better for, namely, a period of apparently complete rest. Avoid dryness at the roots, affording thorough supplies of water or liquid manure, not, however, making the soil sodden by needless applications. Where the roof lights have been removed the borders will have been well moistened by the recent rains. Ventilation will be necessary to the fullest extent, so as to keep back the blossoms, and the roof lights should remain off until the flowers are emerging from their scaly covering, and not then safe from frost.—G. A., St. Albans, Herts.

Kitchen Garden.

PARSNIPS AND CARROTS.—The main crop of these should now be sown as the soil becomes dry. But better defer this for a week, or even a fortnight, than to sow while the soil is wet and cold. The soil is at present in a very wet and cold condition, which will necessitate extra care and watchfulness. A slight pointing over will be of great service in bringing the soil into good tilth. The seed will require to be sown a little more thickly than usual, on account of the wet harvests of last year, many of the seeds being weak or sterile.

PRICK OFF CAULIFLOWERS.—These should not be allowed to become drawn and weakly in the seed pans or boxes. They should be pricked off into other boxes or frames as soon as large enough to handle. It is not necessary to wait for the second leaf before this is done. They will need a little care in shading and watering. Use tepid water.

LETTUCES.—These will also require attention. They should be pricked off into shallow frames, placed on a mild hotbed, or, failing this, prick off into boxes and place these in a house near the roof glass. Avoid a high temperature. This also applies to the Cauliflower.

HERBS.—It is now a good time to sow many kinds of these in boxes. Herbs are often much more successfully raised in boxes placed in cool frames than when sown later on the cold soil.

PEAS.—Another sowing of second early Peas may be made at the end of the month. See that the soil is in good condition. Open the drill on a warm, dry morning, if possible.

SEAKALE AND RHUBARB.—More of these should be covered to succeed that covered some weeks since. The material used for the earliest supplies will afford sufficient heat to bring this late lot on sufficiently fast. The pots must not be taken off that just forced. The lids may be kept off in the daytime, but replaced on frosty nights.

MINT AND TARRAGON.—More roots of these should be placed in heat to keep up a supply. Place the roots thickly in pots and deep boxes. Water with tepid water.

SHALLOTS should now be planted on a well prepared border. Choose a dry day and when the surface is in good order.

TURNIPS AND RADISHES.—These should be sown in frames where a little heat can be maintained, either by fermenting material or hot water pipes. Sow the seed thinly. The Radish will be used as they become fit, and will not interfere with the Turnips if properly thinned. The soil should be light and rich. Turnips should be grown quickly, or they will be of indifferent flavour.

BRUSSELS SPROUTS.—Seed should now be sown, either in frames or boxes. See that the seedlings do not become drawn in too much heat. A cool, airy house is a good place for these. Careful watering is important, as they are very liable to damping.

A BORDER OF POTATOES may be now planted. See that the soil is in good heart, light and warm. The sets for this early planting require careful preparation. They should have been stored in a light, airy room where the frosts could be just kept out, and no more. Long blanched Sprouts are of no value; these perish as soon as placed in the soil at this early date, the soil being cold and wet.—A. T., Cirencester.

The Flower Garden.

PREPARING SITES FOR PLANTING SHRUBS.—The positions intended for establishing various shrubs, including evergreen, deciduous, and flowering shrubs, should be prepared in the best possible way, so that they may, after proper planting, have a good chance of succeeding. Shallow preparation does not, as a rule, conduce to a satisfactory growth, therefore it is always advisable either to thoroughly trench the ground or add a sufficient quantity of good soil, into which the roots will freely permeate. The great majority of shrubs will succeed in ground so treated, and if the whole bed or border cannot be trenched over, stations for single specimens may be similarly treated. Rhododendrons, Azaleas, and American plants will be benefited if some good turfy peat can be intermixed with the soil previous to planting.

PLANTING ROSES.—As soon as dry weather prevails and the ground is in workable condition, the work of planting beds and borders with dwarf and standard Roses which may have been suspended since autumn can be resumed. In the meantime the soil has been fully prepared, and as soon as favourable conditions permit will be found in excellent condition. Climbing Roses, too, against walls, fences, pillars, arbours, and trellises, may be planted. Dwarf and standard Hybrid Perpetuals and Tea Roses are the most popular for beds and borders, the stronger growing and rampant climbers as, for instance, climbing Tea Roses, climbing Polyantha varieties for walls, and for other positions Ayrshire, Banksian, Boursault, evergreen and multiflora.

PRUNING CLEMATISES.—Clematises, embracing as they do a number of different sections, require pruning in different ways, according to their manner of flowering on young current year's wood, or that of the previous season. Varieties belonging to the popular Jackmanni section all need very close pruning, in some cases cutting them down to the ground. Montana, patens and florida Clematises, flowering on one year old wood, should, of course, have a liberal quantity of this preserved and laid in. Lanuginosa and viticella types may have the shoots shortened moderately, or about one-third.

VIOLAS, PANSIES, CALCEOLARIAS.—These are now commencing to grow in the frames, and should have abundance of air supplied, removing the lights altogether in favourable weather, in order to prepare them for removal; the former being planted out in beds and borders, and the latter transplanted wider apart in other frames to strengthen.

PLANTING ANEMONES AND RANUNCULUSES.—French and Dutch single and double Anemones, and French and Persian Ranunculuses make a brilliant display of bloom at an early date if tubers are planted now. Plant in separate beds in soil of a friable character. Form drills 6 inches apart and 3 inches deep, planting the Anemone tubers 6 inches apart, and the Ranunculus tubers 4 inches apart.

DAHLIAS.—The old roots stored away for the winter should be examined, and a portion brought out and placed in gentle bottom heat to encourage them to push growths for the purpose of taking them off and inserting as cuttings. The rest of the roots may be kept stored for another month, when they may be placed in cold frames, surrounded with soil to the crowns, where they will start gradually. A packet of a good strain of single Dahlias to be grown from seed ought now to be sown in pans placed in gentle bottom heat, so that the seedlings on germination may have time to strengthen before the planting season arrives.—E. D. S., Gravesend.

Trade Notes.

Flower Displays and Flower Holders.

Patents for use in decorative floral work are fairly numerous, and one of the latest brought before the public is Bruce's Combined Flower Displays and Adjustable Flower Holders, the patentee being Mr. A. P. Bruce, The Nurseries, Chorlton-cum-Hardy, near Manchester. We figure on these two pages the Displayer, and it will be seen that figures 3 and 4 are made specially to fit the standard earthenware exhibition vases, and are made in four sizes. These, we think, should prove a boon to many exhibitors. They are easy to manipulate, there is nothing to get out of order, and they take up but little space

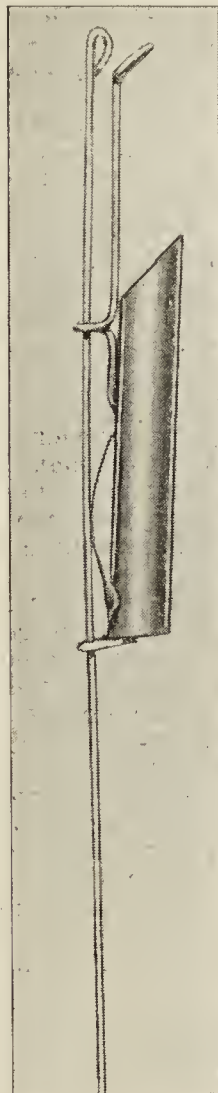


FIG. 2.

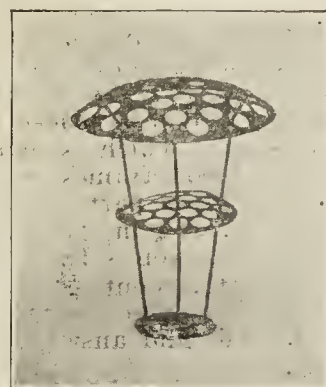


FIG. 4.



FIG. 3.

Bruce's Flower Holders.

in transit. The adjustable flower-holders are found very useful where cut flowers have to be suspended from curtains, corners, friezes, and other parts of a building, for the holders can be hung on strings, loops being made for their insertion.

Hop Manure.

We have had brought to our notice a patent chemical manure, under the above title, by the manufacturers, Wakeley Bros. and Co., Limited, Honduras Wharf, Bankside, London, S.E. The manure is of utility "for field crops, garden and potting purposes," and is "used in the ordinary way at the rate of about one-third manure to two-thirds of loam" (for potting). It is sold in bags, 5s. per cwt.

Trade Catalogues Received.

- Conrad Appel, Forest and Agricultural Seed Establishments, Darmstadt.—*Tree, Grass, and Clover Seeds.*
- Gartons, Seed Merchants, Warrington.—*Farm Seeds.*
- Gemen and Bourg, Rose Growers, Luxembourg (Grand-Duchy).—*Autumn and Spring Rose Catalogue (in English).*
- Peter Henderson and Co., 35 and 37, Cortlandt Street, New York.—*"Everything for the Garden."*
- Kelway and Co., Langport.—*Kelway's Manual, 1904.*
- Wm. Kerr, Potato Grower Expert, Dumfriess, N.B.—*Best Potatoes to Grow.*
- Vilmorin-Andrieux and Co., 4, Quai de la Megisserie, Paris.—*Chrysanthemums.*
- Webb and Sons, Wordsley, Stourbridge.—*Farm Seeds.*

THE BEE-KEEPER.

Supering Stewarton Hives.

In reply to "Hexagonal," whose query appeared on page 131, the additional brood-box must be given underneath, and a little before the other is full of brood and bees. There is very little danger when the brood nest is extended downward in this manner, as the heated air ascending prevents chilling the brood. Queens never hatch simply because a colony is short of room, such an occurrence would be explained either by superseding or swarming. If the former, then the queen would, during favourable weather, get fertilised in the ordinary way and take her place at the head of the stock. If the latter, all the cells would require excising except the most perfect one, and the swarming fever would, as usually happens, subside if additional room is given at the same time.

The super should be placed above the brood nest as the honey flow commences, which is evidenced by the elongation of the cells of the brood frames next to the top bar. If in doubt, examine the upper part of the comb and ascertain if there is fresh honey coming in, and if the weather is settled the super may safely be given. The partly filled and drawn out super will be an inducement to the bees to commence work in it. The reasons why the Stewarton hive has not been advocated I trust you will find answered in a subsequent article.—E. E., Sandbach.

Answers to Queries.

Yes, as "Hexagonal" surmises, honey production is in direct ratio to the strength of colonies. It is estimated that during its lifetime a bee gathers a teaspoonful of honey, the deduction is, therefore, very simple—plenty of bees, plenty of honey. Strong colonies, however, require management in order to keep them at work, and this is where knowledge is power. With regard to your query *re* prevention of swarming, the principal cause of swarms is the completion of the brood nest and overcrowding. Modern hives have been so constructed that it is possible to retain a portion of them unworked by the bees, although they store honey overhead. All the double brood chambered hives are based on this fact. If a colony is short of room above, they commence working out the bars in the safety valve, which is indicative of more room being required above. The strain of bees has, however, something to do with swarming. If a colony persists in coming off under all adverse conditions, take the old queen from the cluster and the swarm will return to the hive and commence working again, and the first hatched queen heads the colony. Always preserve the youngest queen. One of the causes of swarming is the natural inclination to supersede an old queen.

"STEWARTON."—With all due deference, I must still beg to differ. As you state, "If the apiarist is a handy man," &c., but my comparison of the cost of the Stewarton was based upon catalogue price of an equal number of bar-frame parts, and as the majority purchase at this figure I think you will agree with me that it is the only fair way to compare them. Of course, there are ingenious men who can make hives cheaply. I am acquainted with one myself who makes his from Quaker oat boxes for about 2s. 6d. each, but this cannot be taken as a criterion. With regard to grocers supplying boxes free, I am very pleased to hear that you are so favourably situated; personally I use all sorts of packages for different purposes, and I find a difficulty in purchasing them. The trough for feeding purposes has been used since 1880, and is now fitted to some bar-frame hives on the ground that the bees can be fed without disturbing the wrappings. It is a matter of preference whether they are fed above or otherwise. I quite agree with you that queen excluder is a hindrance to the bees. Excluder of some kind is, however, necessary, and where the zinc is not used the true Scots method is employed, viz., covering all the frames but the two outer ones with a sheet of calico. The bees naturally seek these combs to store the honey, and naturally find their way into the super. It would not be natural for the queen to seek these for ovipositing. Your error appears to be in not using either calico or zinc.—E. E.

Young Gardeners' Domain.

Thysanacanthus rutilans.

This plant is one of the most graceful of our winter-flowering stove subjects. With its long, pendulous racemes of scarlet flowers, it has beauty unexcelled, and its season of blooming ranges over the greater part of winter and spring. It is not very fastidious in its requirements, for it will grow and flower splen-

didly in a mixture of friable loam and leaf mould in equal parts. I find young plants bloom best, and I advise striking cuttings as early as they can be procured, so as to give them a long season of growth previous to flowering. The cuttings should be inserted singly in small pots, and when rooted must be potted on and kept growing. I think 48's and 32-size pots large enough to flower them in, as when the pots are well filled with roots they can be fed and kept growing with occasional waterings of liquid manure. The scale insect is the worst pest I find attacks them, but frequent spongings with soapy water will keep them in check.—ASPIRANT.

Scottish v. English Gardeners.

I am very much amused with the seriousness with which the contending parties treat this old-fashioned question. Those who have really travelled beyond the limits of their own country can speak with some authority, but I fail to see how on earth anyone else can. The question has for years been a cause for heart-burning, and, as older readers will undoubtedly remember, has been several times before the public. I am myself open-minded in this, as in most questions which affect the interests of the United Kingdom, and can never tolerate national bickerings of any kind to interfere with individual merit. Indeed, I am not ashamed to say that I extend this feeling to aliens as well, a thing which many cannot say they ungrudgingly do. And why not? But is there anything in the question of Scottish preference? I am inclined to think there is. An English proprietor told me he would not have an English gardener on any account. On inquiring his reason he said they were not so methodical in their work—in a word, not so economical and practical. He admitted the horticultural capacities, but he said he wanted more than that, and he found what he required in the Scotsman. All my efforts to neutralise distinctions were unavailable. He still holds firmly to his opinions. There are some Scottish proprietors who think the English gardener is the best value, and consequently can see none else to equal him. If this were not so the old adage would be abortive, "A prophet has no honour in his own country." Think over this great truth, O ye contending sons of Adam, and your difficulty will partly, if not entirely, vanish.—COSMOPOLITAN.

Foremen: Their Conduct and Example to Those under Them.

To accept a situation as foreman in a good establishment for the first time is a large step towards qualifying for a situation as head gardener. In my experience a foreman's situation is most trying. One must be careful in work, words, and actions, thereby leaving little room for comment. If a mistake be made it is oft-times gloated over by certain individuals envious of others' success; it will be jibed and jeered over for weeks after. There is no necessity for bullying at them over it, for it must just be borne. I have known foremen who would stand nothing, not even for peace sake; continually making complaints about this and that, but little thinking that they were losing the influence of those under them.

In most places there is sure to be one or two individuals who seem to glory in making mischief, and also some envious ones. They seem to be for ever cynical to a foreman, and experience will prove that they either push him further up the ladder or off altogether. It is useless to enter into petty strife with these men. It is best to say what you must and leave them alone; give them plenty of rope and your chief will see all of them revealed in their true characters. Foremen must needs be wary. In order to enjoy peace and goodwill much has to be contended with. Try to keep peace, but not "peace at any price"—there is a limit to one's patience. Insist on having done what you believe to be right as far as work is concerned. Take no notice of any back-talk. Be firm in purpose at all times and in all places. Never allow anyone to overstep what little authority you possess, and never overstep yours. You must gain influence over those under you and sustain the confidence already placed in you by the chief.

When once a foreman's influence is assertive his examples will in most cases be copied to a nicety. Therefore it is imperative that his conversation and conduct at work, or after, and on or off the place, should be well ordered. Try to keep down all that is indecent to refined ears, or against the principles of propriety, and also try to infuse a little enthusiasm into those under you for advancement in the knowledge of their work. No doubt your first attempts will be scoffed at, but with good influence you will succeed, and in later days the journeymen will feel thankful and remember you.

In so short a space at command I cannot relate any of my experiences as foreman (which I think would afford much amusement and perhaps some instruction). It is to be hoped that everybody does their best to be worthy of the profession, which will one day, I trust, rise to its proper place in the world.—[In order to secure that, it is necessary that the slothful be banished from our ranks, and that those who are opposed to the study of the principles underlying the practice of horticulture be ruthlessly cast aside or relegated to their proper sphere or rank, which is that of ordinary garden labourers, to whom science does not appeal.]—C.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

PLANTS AFFECTED (Rust).—We are unable to reply this week, but will do so in our next.

BOOKS (A. B.).—We do not know of any book on seed saving for commerce, but advise you to write to B. Wynne, 30, Wellington Street, Strand, London. The books on floral decorations are all at present out of print, and only procurable second-hand. We believe a work will shortly be produced.

LECTURES DELIVERED ABOUT THE COUNTRY (Idem).—The lectures delivered by county council lecturers are not usually printed, though sometimes reported in newspapers and horticultural periodicals; the most important are frequently alluded to in the *Journal of Horticulture*.

BEGONIA SOCOTRANA: CORRECTION.—Unfortunately a mistake occurred in the notes under the above heading on page 114, lines 45 and 46. "Dew overhead, but hot water them for a few days," should read: "Dew overhead, but not water them for a few days." Line 23: "If from a 32 size (5in) pot, into a 54 size"; the "(5in)" is not mine. I intended by saying a 32 size to mean a pot 6in across the top inside the rim, which I think is most generally known as a 32 size, although sizes vary in different districts and potteries.—E. F.

ROSES (A. B. C.).—Assuming your Roses were correctly named we are not able to account for the lack of richness in the colours. A trace of iron in the soil is said to deepen the colours of dark Roses, and liberal applications of wood—not coal—ashes or broken charcoal to the soil might be of benefit in your case. You may spread it on the surface an inch thick if you have sufficient, pointing in lightly with a fork. Failing a supply of charred material you may with advantage give a good dressing of soot, making the soil black with it and pointing it in. Copious applications of liquid manure, such as the drainings from manure heaps, or soot water, when the buds are swelling, would increase the size and deepen and brighten the colours of your Roses.

BRIAR CUTTINGS (A. M. B.).—We prefer inserting them in November, but you may try some now, choosing firm matured portions of last year's wood, cutting in lengths of about 8 inches the lower end of each smoothly close under a joint, and insert firmly in sandy soil, only one, or at the most two, buds being above the surface; but all the buds must be cut clean out except those, or suckers will spring up. If the cuttings root and grow well the stocks may be grafted next spring, attaching the scions to the upper part of the stock within the soil, which must of course be cleared away for that purpose if the plants are not taken up and potted for grafting. To facilitate budding and grafting *in situ* it is usual to insert the cuttings firmly about half their length, and draw soil up the remaining portion as if earthing Potatoes, their ridges being easily levelled down for operating on the stocks. They often have to remain two years to get strong enough, and the more roots the stocks have the better is the growth of the attached Roses.

OLD FRUIT TREES (W. B.).—Limewash, or dusting the trees with dry lime when the branches and twigs are wet; as they are on a damp, still, foggy day, will destroy moss on them, and any lime falling to the ground will also be of benefit to the roots. Old healthy Plum trees with long spurs often bear well, and it is certain if you cut back all those spurs you will have no fruit this year. If much crowded it may be desirable to thin some of them out, retaining the best placed and most promising, and some of them may possibly be tied back to the main branches. It is important to so prune and dispose the growths that the foliage will be fully exposed to the sun and air in summer, a thicket of leaves being the reverse of conducive to fruitful wood. Fresh roots near the surface of the ground also promote fruitfulness, and they may be incited by removing some soil, just barring some of the roots, and adding fresh, containing a good proportion of charred material and some lime rubbish, pressing it down pretty firmly, and mulching with manure to prevent the escape of moisture from the soil in summer.

TERM COLLARD IN CONNECTION WITH CABBAGE (H. A.).—In many gardens the supply of Cabbages is secured by one sowing of a large kind, usually in July or August. The plants are pricked out from the seed bed as soon as possible, and are drawn from as wanted, from the time they become suitable to use as collards, until the latest "turn in" and go to the house as Cabbages.

PARAFFIN OIL FUMES AND ARUM LILIES (A. D.).—The syringing of any plant with neat paraffin oil is a certain way of killing it, as the oil sinks into the tissues and kills the cells as well as retards the performing of the functions of the plants. The washing of the wall with paraffin oil and lime where the Camellia had been killed with paraffin, removed, and burnt, would be likely to give off fumes injurious to vegetation, especially in the immediate neighbourhood of the dressing, and we do not wonder at the Arums put in the position, some in bloom, others coming into flower, turning a rusty colour and the leaves shrivelling. Indeed, we should consider the fumes from the paraffin oil the cause of the mischief.

TIME REQUIRED TO BRING SPIRÆAS, DEUTZIAS, GUELDER ROSES, AND LILY OF THE VALLEY INTO FLOWER (Puvile).—The time required depends upon the time of year and the convenience at command as regards heat. To have the plants in flower by Easter they must be placed in heat without delay, a period of not less than a month being required, even in a temperature of 55deg to 65deg, advancing 10deg to 15deg from sun heat, and to make sure, it is better to allow a longer time, say six weeks, the plants being all the better for hardening off after advanced in flowering, it being necessary to exercise judgment in these matters, retarding or forwarding according to the forwardness or backwardness of the plants for a given purpose. This means varied convenience, it being all-important to have the plants quite forward enough.

NAMES OF PLANTS.—*Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number.* (F. S.).—1, *Cypripedium insigne*; 2, *C. venustum*. (S. P.).—*Erica carnea*; *Cunninghamia sinensis*. (L. F.).—1, *Ledum palustre*; 2, *Peperomia arifolia*; 3, *Catasetum tridentatum*. (J. J.).—*Goodyera discolor*.

Sheffield Chrysanthemum Society.

The schedule for the 1904 show has now been arranged, and one of the principal features will be a vase class (8 vases), for which prizes of £10, £7 10s., £5, and £2 10s. will be offered; the usual boards of 24's and 12's will be retained in addition, but 6's are dropped. In the District Class some of the smaller classes are dispensed with and others made more valuable, vases again being encouraged. Altogether an attractive prize list has been adopted, and the schedule will be more up to date.



The Cattle Question.

Meat and milk, we want them both, and we want them both to be home bred. There is room for them in these islands; room made by the lessening of the corn area. In 1846 we grew 22,000,000 quarters of wheat; in 1902 the quantity was 7,000,000 quarters. The land has not disappeared—a portion has certainly been built over—but on that corn area we want stock, which is the farmer's stronghold. We do not suppose, indeed we know to the contrary, that per acre more wheat is grown than was produced in 1846, so that it is not our methods which have deteriorated, but simply we have been rushed out of corn growing by free imports. The cattle and where they come from—part are bred at home, and a great part come from Ireland—and good stuff they are. Thank Heaven! we still keep our ports closed to Canadian stores. We ought not to desire them. We can breed plenty of our own, and run no risk of importing disease.

But about those Irish? They used to be rather a reproach than otherwise. They might start from home pretty fit, but the rough passage and the long journeys inland made them look sorry stock when they reached our markets. Now the cattle boats are well equipped, and a

good train service forwards them quickly to their destination. But more than that; they start from a better foundation. They are learning the art in Ireland of breeding first-rate stock, and the way they are doing it is this: The Board of Agriculture has come to the help, not by leaflets and instructions, but by solid gifts of money for a specific purpose. Thousands of pounds are being spent per annum in pure-bred rams, bulls, stallions, boars, and poultry.

The way part of the money is allotted is thus: In April there is held in Dublin a great show, where as many as 300 bulls will be exhibited. The judges are instructed to select those bulls which they consider good enough to improve the stock of the country, and if sold (under certain conditions) the Government allows £15 towards the price. Thus a man selecting a bull, say, value £35, the beast would only stand him the very moderate sum of £20. The conditions attached are that this (partly) Government bull shall be available at a moderate fixed fee for cows in the immediate neighbourhood of his home. To compensate a farmer who is taking a bull from Dublin to his distant holding, Government again steps in and arranges with the railway companies to take these animals at a reduced cost. The only things that railways take at reduced cost here are the foreign dumpings that are almost (freely) put on to our market. Truly, our Irish friends with their persistency have got something out of the unwilling hands of their alien rulers.

There are in some neighbourhoods private enterprises very much akin to what we have been describing in Ireland. An expensive bull is too much for the purse of one farmer, so clubs are formed and good, sound sires are either bought outright or hired for the general good of the committee. This is public-spirited, and the system deserves to be extended. The breeding of good horned stock is attended with less risk and possibly less expense than the breeding of horses. There is, for the expert, money to be made in both; but we want to see the cottager's cow, the lane cow, the small farmer's cow all improved. These "small" men, by close personal attention, make quite the best of what they have to do with; but place a good bull within their reach at a low figure, and they would build up some really valuable stock. Yes, that is if we could persuade them to use only their best cows—for good stock requires a good dam as well as a good sire.

But the fault with most people is the inferior sire. If milkers are wanted he must come of a milking stock, however fine he may look otherwise; it is his milking forebears that are wanted now. There is another thing. There is always a demand for good milch cows. Times are bad, money scarce, prices tempting, and the poor man parts with what, well managed, would be a veritable gold mine. This would not so much matter to the country at large if the good cow got into a breeder's hands; but alas! she goes to that man who feeds her well, milks her well, fattens her well, and then her end is the butcher without a chance of further reproduction. This happens not once or twice, but time and time again. We believe if we rightly recollect the figures, 20,000 fat cows are annually slaughtered in Edinburgh alone. They go in, say, after their third or fourth calf, just at their prime, heavy milkers, quite up to the Government requirements, and they are seen no more till they emerge as beef. This seems a wicked waste of material.

In the days following the first terrible attacks of rinderpest in this country, stock rose to a maximum price, and for a season veal disappeared from the markets. Veal is very good, and we eat it with satisfaction if we know it is young bull calf, but it seems too great a sacrifice if it is "quey" calf. One would think, too, those good town milkers might breed again, and homes found for the calves in the country. There is many a cow quite able and competent to rear three calves. We have known a good cow do four, and with all the appliances of science in the shape of calf food and calf meals, we think there ought not to be any question about adopted calves being properly reared.

But they must have a certain amount for the first month at least (we should like to say longer) of good new milk that has not known the separator. From what we heard the other night at an agricultural dinner from our would-be member—an Irishman—that the industry of Devonshire cream is so growing in Ireland that there is a danger that the best pail of milk finds its way into the little brown jug instead of into the hungry calf's stomach. If this be so,

there is a danger that the lesser industry may ruin the greater. A calf never forgets a stinted youth. It is impossible to make up in after months for the meagre diet of calfhood. A good deal of this white scour among Irish calves is undoubtedly owing to our sanitary arrangements and food other than that Nature provides. Perhaps one of the greatest difficulties, or perhaps the greatest that breeders have to contend against, is abortion, which has really assumed the character of a plague in some parts.

That it is highly infectious there is not the slightest doubt, and a bull may do as much harm in the spread of disease as a cow who persistently slips her calf. There are means advocated by the faculty which appear to be fairly successful—injections of carbolic acid and antiseptic remedies—but these are of no earthly use locked up in the closet of the vet. The farmer, as a rule, moves so slowly to grasp any new idea that we suppose the trouble must go on unabated till men have their eyes opened to the terrible annual loss they are sustaining.

Milk fever happily is a tangible complaint, the prevention of which really rests with ourselves. We know the cause and we know the preventive remedy. It does not steal upon us with such deadly uncertainty as does the abortion trouble—that we can often trace to the source—but milk fever is a good bit attributable to our own laxity in cow management. There will be cases just to prove the rule, but in many big dairy farms the disease is practically unknown.

We wish we could impress our friends with the desirability of getting a few more winter calvers. There is such an outcry in this village at present, both for butter and milk, one man pathetically remarking he was sick of dripping and bread. What bit of butter there is is spoken for well beforehand, and an extra pint of milk is not to be had save in a tinned form, and this is a purely agricultural part. One man told us with glee he had five cows to calve in March, but by that time other people will be in the same case, and down tumbles the price.

We are not surprised that with scantily supplied dairies the managing housewife prefers to churn only once a fortnight. We don't blame her, but we do eschew her butter. The factory system would alter all this. All these "little sups" would be gathered freshly and blended, and freshly worked, so that a good, pleasant-favoured article would adorn our tables instead of the highly-flavoured one that now turns the stomach of the most ardent butter lover.

Work on the Home Farm.

Pastime is a more suitable term than work on the farm to-day. We have a wet (very wet) day; then a fine morning, a wet afternoon, and a fine day to follow; then another downpour. We are at our wits' end to find useful work at all for the horses, and the work the men are engaged in is chiefly manufactured for the occasion. The most useful work for the men lately has been that of keeping surface drains open and creating new ones where necessary. No ploughing or similar land work has been possible during the week, and there is little likelihood of its being possible for another week to come; and the best advice to farmers just now is to leave the land alone.

We have been carting manure out into "hill," which under different conditions would have been left in the yards some weeks and then spread directly on the land, thus saving much labour.

The threshing which we spoke of last week is still undone, as it would have been madness even on the finest day to thresh barley from stacks the sides of which were soaking wet. There you find the best of testimonials for Dutch barns, for with your grain well housed in them you are independent of weather on threshing days.

We hear great complaints of the unthriftiness of straw-fold cattle this winter, and the cause is probably not far to seek. Much of the straw which is being used for foddering purposes is almost useless as food, yet the animals are expected to feed on it, or at any rate, use it as their chief article of diet. Good straw is most useful for such a purpose, but not half-rotten stuff in a state approaching that of manure. If such straw is used at all it should only be in a cut state and in conjunction with pulped roots, treacle, salt, and condiments. Malt culms or dried grains are a great help in using up damaged straw, but the proportion of cut straw must be limited and the mixture made three or four days before it is required for use.

Sheep on limestone soils tread through mud to the rock every step they take, and it is almost impossible for them to lie down and rest. It is cruelty to keep them on the turnips with the land in its present state. A butcher tells us that his skins are unsaleable until they have been washed.

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Journal of Horticulture.

THURSDAY, FEBRUARY 25, 1904.

Spring Frosts.

Harvest is the most anxious time with the farmer, so spring is the most critical time with the fruit-grower's prospects. Indeed, the risk, if a man's livelihood depends upon it, is much greater; for whereas it takes a week or two of ordinarily bad weather to spoil a harvest, a single frosty night may spoil the fruit season. But though we are only dealing here with amateurs and the wall and dwarf trees they grow, the disappointment is none the less when the prospects of the whole coming summer, in the way of the choicest fruits, are spoiled by one night's frost. With trees on a wall, as well as with dwarf trees in the open, there is no reason why a fair crop of fruit should not be obtained nearly every year, say four years out of five, if two conditions are fulfilled—the proper feeding of the tree and protection from frost. It is the latter only that we are concerned with here.

If one has some experience in foretelling frost, and also is prepared to take some risk, the trees need not as a rule be covered up or protected in any way more than a half dozen nights in a spring, except with those very early-flowering trees—Apricots, Peaches, and Nectarines. A thermometer in a garden is an absolute necessity for anyone who intends protecting his trees. One may be hot with walking or working, and have no idea that the temperature of the air is rapidly falling, with the result that the trees may be left uncovered on a critical night; or one may be chilled from standing about, or have a cold oneself, and may go to the trouble of protecting the trees when there is no need for it. Then the thermometer puts the matter beyond doubt. It should register the minimum temperature during the night; for only by noting the lowest

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

nightly readings, and comparing them with the readings of the previous evenings can one gain experience in forecasting frosty nights. The thermometer should be hung 4ft or 5ft above the ground, and should be fairly exposed to the north and east winds, as it is from those quarters, especially the latter, that most of our spring frosts come.

A sufficiently reliable minimum thermometer can be bought for two shillings, and if at any time detached drops of the spirit get into the upper part of the tube they can easily be made to rejoin the original bulk by holding the thermometer in the hand, bulb downwards, and throwing the hand down swiftly and stopping with a jerk. Those who wish to go into the matter with greater nicety will have a wet bulb thermometer as well as a dry bulb, the former having the bulb either immersed in water, or with a piece of cloth wrapped round it, which can be soaked in water when it is desired to take a reading.

The two thermometers together enable one to find out the amount of moisture in the air, and the temperature the air must fall to in order to be completely saturated, in other words, the dew point, by noticing the radiation of temperature by evaporation, and referring to a table of temperatures prepared for the purpose. The greater the difference between the readings of the dry and wet bulbs in a given temperature of the air the greater the danger of frost.

Everyone knows that if the sky is overcast there is very little chance of a frost, at least in the spring, as the clouds prevent, or rather lessen, the radiation of heat from the earth. When the evening is still and the sky clear the temperature drops rapidly after sundown at any time of the year. As the earth gives off its heat the stratum of air in contact with the earth, and the vegetation upon it, are rapidly cooled, and the air may be many degrees cooler there than 5ft above the ground. Hence a distinction is always made between readings on the grass and 5ft above.

This has very important effects upon the fruit-grower if he is in a low-lying situation, especially if near rivers, swampy meadows, or sheets of water. An exception to this statement must be made in the case of vast sheets of water, as the effect of the proximity of such is, on a smaller scale, like that of nearness to the sea, namely, that it renders the climate more equable. I have said that the air close to the ground is coldest. Hence all over the country there will be a cold stratum of air near the ground, and as this is heavier than air a degree or two warmer, this colder air will seek its own level like so much water, that from the high ground sliding down into the valley and displacing the warmer air which is there immediately above the cold stratum.

The consequence will be that the air being so cold for perhaps several feet above the ground in the valleys, the radiation of heat from the ground will go on all the faster, and hence it will freeze in all the valleys before it freezes on the higher lands, as a cup of tea will give off its heat faster in a frosty air than it will if set in the fender with the warm air above it. Hence we see how it is that in low-lying situations there is more frost, or at least what may be called the dewy frosts of spring, than on higher ground. This statement needs this amount of modification, that, after a certain elevation the advantage is counteracted by the greater dryness and rarity of the air inducing more rapid radiation.

Fruit-growers attach much importance to having fruit land where there is atmospheric drainage, that is, land so situated that the cold air can run off and slide down to some lower lands. A remarkable instance of this was seen in the spring of 1902. In a garden situated in close proximity to river meadows there were on May 14, 10deg or 12deg of frost, which cut off nearly all fruit that was not protected. In another garden, three-quarters of a mile away, but on higher ground, only 4deg or 5deg of frost were experienced, and the owner had a very good fruit year. Many will have noticed when cycling or driving on a still spring or summer evening how in going down a hill one generally enters a cooler atmosphere. Where there are no valleys for the cool air to run down into, in other words where the country is perfectly flat, there is almost certain to be a good deal of frost, the Fen district being an extreme case in point.

Thus we see the necessity for a fairly still night for a spring frost, for if there is wind the air of all places is

mixed together—the lower stratum of air with that above it, the air of the valleys with that of the high ground—thus maintaining a fairly uniform temperature, and instead of 10deg of frost in the valley and 3deg or 4deg on the higher ground there may be only 4deg or 5deg everywhere alike. April, 1903, was a remarkable exception to the statement about still nights and frost, and is the only time we remember of sharp frost and strong wind together so late in the spring, and high and low lands felt it with about equal severity.

The above statement of elementary facts will be familiar to most gardeners, but was necessary to make clear what is to be said. Those who have not studied the matter before will see that we can generally know when there is a likelihood of frost. Of course, the sky will sometimes clear and the stars come out towards morning, the minimum temperature usually being at sunrise; but if it does not clear till nine or ten in the evening in April or May, when the temperature is above 40deg, there is not likely to be enough frost to injure fruit blossom. If it is dry most fruit blossom will stand 5deg or 6deg of frost without injury, sometimes even more.

By looking at the thermometer in the evening one gets to know just what to expect. If the gardener is the only person to cover up trees, and he is not accessible after five or six, the trees must be covered up more often than when there is someone handy to do the work if need be as late as nine or ten o'clock if the temperature is seen to be rapidly falling, consequent upon a sudden clearing of the sky. If the man on duty comes round at nine or ten o'clock to make up the fires he could make it a rule to look at the temperature, and, if necessary, cover up or protect trees with the aid of a lantern. It need not be a long operation, if the necessary things are kept ready for an emergency and are properly contrived. The essential point is to have everything ready when wanted, so that it is known just which things to use for each particular tree. If the spring goes on and they are not wanted—a rare thing—all the better, for it will be a marvellous fruit year.

It goes without saying that the trees need much more protection when in blossom than after the fruit is set, for not only will the fruit stand more frost than the blossom, but there is generally foliage to protect it. Some gardeners, after covering up wall trees when necessary during blossoming time cease to do so after the fruit is set, put long fishing nets in front of the wall, which as a rule will sufficiently moderate any frosts, to save the fruit.

As stated above, it is Apricots and Peaches, and in a less degree Plums, which need to be watched for such a long time. A frost so often comes when the young Plums are just forming, when there is no foliage worth speaking of, and the embryo Plums are blackened. Some are worse than others, Green Gage being especially bad, often shedding all its fruit during continued cold weather, even if there is little or no frost. With dwarf Pears the protection is a small matter, but they seldom get it, which is all the greater pity; as just the throwing of some light covering over the bushes or pyramids, perhaps only once about the end of April or beginning of May, may make all the difference between a good crop and none at all. With Apples it is a still smaller matter, as we rarely get more than one damaging frost while they are in bloom, and seldom or never after it is over.

One knows it seems most futile labour covering up trees at night and uncovering them in the morning, but one is well rewarded in the summer by seeing the fruit develop, and knowing that it was one's own efforts which saved it from destruction. In 1903 we had the gratification of seeing a good crop of Peaches and Apricots on our trees through having protected the trees in the spring, a gratification which was not lessened by seeing trees in other gardens quite devoid of any fruit through the neglect of adopting this simple precaution.—A. PETTS.

BEETROOT CULTIVATION IN GREENOCK.—The directors of Berryards Sugar Refinery, Greenock, gave to their employes a little over a year ago a plot of ground and clubhouse. At that time they suggested that the amateur gardeners, in conjunction with the plot-holders of the Lyndoch Allotment Gardens, go in for the cultivation of sugar Beetroot. This has been going on for some time, and excellent results are being obtained.



Lælio-cattleya Myra var *Charlesworthi*.

This brilliant little orchid, which bears a profusion of its lovely rich yellow flowers, has been greatly admired by visitors to the Royal Horticultural Society's Drill Hall exhibitions on the last two occasions. The exhibitors have been Messrs. Charlesworth and Co., of Heaton, Bradford, who were able to display a number of exceedingly well flowered plants. The parentage is *Lælia flava* and *Cattleya Trianae*, and it received an award of merit on the 26th of January. The sepals and petals are rich chrome yellow, and the lip is dark crimson (or ruby-purple), with yolk-coloured tube. Its size and form, as Mr. Shayler's drawing shows, is intermediate between the two parents. It is an excellent hybrid.

Cultural Notes: *Masdevallias*, *Chysis*.

Masdevallias of the *Chimæra* section and a number of the small growing forms will need attention to the roots now. They are, comparatively speaking, easy to grow in a shady, moist house, provided the roots are in good order and running in a sweet, well divided compost; but in a close or sour medium the roots die off wholesale and the plants soon perish. Yet they dislike being disturbed, and only in cases where the centre of the mass is in really bad condition should they be shaken right out, a little picking away of the worst of the material answering in most cases.

When they have to be shaken out it is as well to be thorough with it and cut away every bit of dead root, retaining only the healthy portions. They may then be washed in tepid water, laid out on a shelf or stage to dry a little, and then re-basketed or potted as the case demands. All those having pendant scapes, like *M. Backhousiana*, should be basketed, but small, erect flowering types are better in small pots or pans. In every case thorough drainage is absolutely necessary, quite two-thirds of the depth of the pot being filled with crocks, sweet, clean sphagnum points and peat fibre being the best compost.

Many other plants will need repotting now, or shortly, notably the terrestrial class of pseudo-bulbous orchids, of which *Cynochilus chlorochilon*, "The Swan Orchid," *Chysis bractescens*, *Catasetum* and *Spathoglottis* of sorts are well known examples. These all like a good proportion of sound fibry loam in the compost, and should be repotted soon after growth commences. In the case of the Swan Orchid most of the old roots will be found dead at repotting time, so may be removed, all excepting an inch or two, which may be left to steady the plant.

The roots of *Chysis* are more persistent, and injury to them must be carefully guarded against. The singular scrambling habit of the plant fits it for basket culture, and the roots have a strong affinity for wood. The *Spathoglottises* are moisture-loving subjects, and should be potted just as ordinary plants are, with the surface of the compost a good half-inch below the rims of the pots. Just after repotting less water is, of course, necessary, but the plants must not be really dry. These plants should be grown near the light, but on a cool, moist bottom of ashes or coke.—H. R. R.

Book Notices.

Mealy Bugs and Scale Insects.*

The greatest foes to our gardens amongst the insects are not those of large size, and hence it is that the Hemipterous Order contains more injurious species than any other. Here is the disagreeable cuckoo-spit, *Cercopis*, and other suckers of sap, especially the *Aphis* and *Coccus*, species of insidious habit and rapid multiplication.

Old books upon garden pests make little reference to these tiny insects, which has led to the supposition that they have been more troublesome of late years. Possibly the general mildness of our winters has favoured the increase of some, but there was ignorance prevalent with regard to their habits and the harm they do. Gardeners had no chance to refer to such a

work as Mr. Newstead's monograph of the *Coccidæ*, the second and completing volume of which is before us. This is scarcely a book the gardener could be expected to buy, yet a copy should be in each of those local libraries which are now general and accessible to gardeners as well as other people. The two volumes represent fourteen years' diligent research, and give us a complete view of the *Coccid* fauna of this country. Every effort has been made to ensure accuracy, and the history of each species is carefully worked out. Coloured illustrations accompany the text, which are admirably drawn, and bring the life-history of the species shown into view.

Insects such as the *aphis* and *coccus* are likely to be transformed with plants arriving here from other countries, but as a matter of fact very few of the former have migrated and got established. With *Coccus* it is different. We have eighty-eight British species. Out of this number fifty-one live chiefly under glass, and have undoubtedly come from abroad. Part of these aliens have been residents for some time, the bulk arrived during the last fifteen or twenty years. The most destructive species, and one difficult to eradicate, where it has established itself, is certainly *Leucanium Persicæ*, very partial to the Rose, Nectarine, and Peach under glass, occasionally appearing in small numbers out of doors. Another common species, rather hardier, is *L. hesperidum*, frequent on Holly, Ivy, and Laurel, also on various species in houses. *Pulvinaria Ribesiae* seems to be increasing as an enemy of the Currant, especially the black; the females have a remarkable power of secreting honeydew.

(To be continued.)

"South African Flowering Plants."†

The author is widely known as a botanist whose discourses and writings are exceedingly lucid and easily comprehensible. In this little book he tells us a considerable amount about the flora of South Africa, and the second half of the book is devoted to a classification of the natural orders of the plants found in that dry country. Mr. Henslow has long studied the subject of adaptation by plants to their surroundings; indeed, some of his best-remembered lectures are on this phase of botany. He shows that South African plants have adapted themselves to the dryness by means of fleshy stems or bulbs or rootstocks; or, on the other hand, by a xerophytic habit, *i.e.*, a hard growth like that of the *Ericaceæ*, which does not allow much transpiration.

The opening chapter is devoted to a very full description of the entire outer and inner structure of a typical plant of the



Lælio-Cattleya × *Myra Charlesworthi*.

flora—*Oxalis cernua*—to give the beginner a general knowledge of plant structure in its main features. Other chapters are: Methods of pollination, the stems and foliage of plants, origin of the veldt and Karroo plants, and structure of flowers, which bring us to the second half of the book. It is illustrated throughout, and will prove useful.

* "Monograph of the British Coccidæ," by Robt. Newstead. Vol. II. London: Printed for the Ray Society.

† "South African Flowering Plants," for the use of beginners, students, and teachers, by Rev. Prof. Geo. Henslow, M.A., &c. Longmans, Green and Co. 39, Paternoster Row, London, 1903. Price 5/-.



Chrysanthemum, Guy Hamilton.

Enclosed you will find two blooms of this variety, which has been in flower since a fortnight before Christmas. I think this speaks well for the keeping qualities of this well-known variety. I have had several plants of it, and none of them exceed 3ft. pot and all. They carry from four to six good blooms. Of course you will see by these that they are now far past.—JAMES TOWELL, The Gardens, Dunbarton House, Gilford, Ireland.

[The blooms had evidently been fresh when despatched.—ED.]

Aster, Diadem.

With reference to this Aster, Messrs. J. Veitch and Sons, Limited, Chelsea (to whom we are indebted for the use of the illustration), observe that it is a lovely Aster of strikingly attractive appearance and the latest flowering variety. The plant grows about 10in high, is of pyramidal and compact habit, much branched, and bears a profusion of double flowers of rather small size, measuring $1\frac{1}{4}$ to $1\frac{1}{2}$ in in diameter; these are quite unique in colour, the two or three outer rows of petals being pure white, and forming a distinctly defined band or margin, in charming contrast to the inner petals, which are bright rosy crimson, deepening to rich purple-crimson towards the centre.

Delphiniums.

Delphinium affords an admirable instance of the great variation that is obtainable within the range of a few species. Another excellent example is found in *Primula sinensis*, the Chinese Primrose, in which the number of garden varieties is very great. Such plastic material as these plants may be said to be composed of answers readily to man's selective and directive influences, to furnish new forms and fresh colours. The garden varieties of Delphinium have arisen chiefly from the hybridising of *D. grandiflorum*, *formosum*, *lasiostachyum*, *chielanthum*, *elatum*, and *peregrinum*, but the varieties from these are yearly being altered according to the florists' standards of the time. Blues and purples largely predominate in the genus, but shades of yellow are not wanting; and in the dwarf *D. nudicaule* the grower has a brilliant scarlet. All are of easy culture from seed or by division. It is advisable to lift, divide, and replant any clumps that are three, four, or five years old. A friable loam, enriched with well-rotted dung, may be dug into the soil, and the crowns can be planted at the present time. We dare not take upon ourselves the responsibility of recommending a selection, but we invite some of our experienced readers to give us of their knowledge.

Manure for Tomatoes.

Writing to the editor of the "Hereford Times," the undersigned says: "In 1902 I carried out experiments with various manures, with the object of determining as far as possible the most profitable mixture for Potatoes and Kidney Beans. The results obtained were communicated to the Press, and the large number of inquiries that I received in consequence from market gardeners in various parts of the country were ample evidence of the interest taken in such experiments. During the past year I could only find time for a very simple experiment, and fixed on Tomatoes. In my Potato experiment I had found a complete manure, consisting of nitrate, potash, and phosphate most profitable on my land, and that potash was the most important constituent. On the Tomato I determined to test the value of potash in a complete manure for this crop. Accordingly two equal strips in a glass house received equal quantities of turf loam containing what I considered to be plenty of lime and nitrogen. To the soil on both strips I also applied superphosphates at the rate of 12ozs per square yard, and to one of the strips only sulphate of potash at the rate of 6ozs per square yard. The yield of Tomatoes from the former strip was 21lb per square yard, and from the latter, which had received the potash, it was 37lb per square yard, and the fruit was finer in both appearance and flavour, and worth quite a penny per pound more. The variety of Tomato grown was Lister's Prolific.—J. O. HOLMES, Droitwich."

Ancient Trees.

With regard to "The Oldest Tree," Professor Rhys Davids, in his book on Buddhism (p 232), claims that the celebrated Bo-tree planted in 245 B.C. by Anuradha-pura in Ceylon is the oldest historical tree in the world. He quotes Sir Emerson Tennent, who remarks that the ages of the Baobabs of Senegal, the Eucalyptus of Tasmania, the Dragon Tree of Oratava, the Wellingtonia of California, and the Chestnut of Mount Etna have been estimated to be anything between one and four thousand years; but that such estimates are matter of conjecture, whereas the age of this Bo-tree is matter of record, and seems to fulfil the prophecy that was pronounced when it was planted, that it would "flourish and be green for ever" (Ceylon ii. pp. 613 and foll.). The Bo-tree under which Guatama, the founder of Buddhism, sat and meditated and first became enlightened—became Buddha—occupies in the Buddhist mind much the same position as the cross does among Christians.—G. H.

Productive Brussels Sprouts.

The season for productive Brussels Sprouts has been much more influenced by flood and rain than that of frost, and though extremes of either are by no means to be desired, there are advantages to be derived probably in some way from both. In a rainy one, such as that of 1903-4, one may see in the daily evidence in the vegetable garden as compared with a corresponding frosty period of winter in other years. Broccoli and Brussels Sprouts show fateful marks as quickly as almost anything, hardly though they are commonly accounted. In the fine garden attached to Leighton House, Westbury, I saw recently as fine a bed of Sprouts as anyone could wish for. There were ample and to spare of fresh, solid, and freely clothed stems, which clearly displayed good cultivation, and the absence of typically winter weather in frost records. We have seen good Sprout beds at Leighton before, but this year's crop excels even Mr. Bound's best efforts in the past. The varieties on inquiry I found to be the two old favourites, Paragon and Veitch's Exhibition. The soil of Leighton is so fertile and well tilled that probably any of the many strains would have given an equally good result. From the stems a second growth of Sprouts were fast developing from the surface that had already afforded an autumn yield. This does not occur on poor ground, nor in long continued spells of frost.—W. S.

Allosorus crispus.

The scientific name *Allosorus crispus* is that preferred by us for this Fern. Others prefer to use one of the following—*Cryptogramma erispa*, *Pteris erispa*, *Osmunda erispa*, the first of these three being, however, now mostly used, when *Allosorus* is passed over.

This elegant little plant, which has considerable first-sight resemblance to a tuft of Parsley, and is hence sometimes called Mountain Parsley, grows in a dense tuft, throwing up its fronds in May or June, and losing them in the course of the autumn. The fronds average about 6in in height, and are generally somewhat three-cornered in outline, with a longish, slender, smooth stalk. They are, as already stated, of two kinds; both kinds being twice or thrice pinnate, and of a pale green colour. The segments into which the sterile fronds are cut, are more or less wedge-shaped, and notched or cleft at the end. The fertile fronds have the segments of an oval or oblong or linear form. The divisions of the fertile frond have a slightly tortuous midvein, producing simple or forked venules, which extend nearly to the margin, each, for the most part, bearing near its extremity a circular sorus. There is no true indusium, but the sori are covered by the reflexed and partially bleached margins, which sometimes almost meet behind, so that the spore-cases are quite concealed. The patches of spore-cases are at first distinct, but ultimately they spread out and become more or less confused and blended. The Rock Brakes is a mountain Fern, choosing to grow in stony situations. It is comparatively rare and local; most abundant in the north of England and Wales, and less plentiful in Scotland and Ireland. This plant grows readily in pots, and also in a Wardian case not too confined; for either of these modes of cultivation its small size and elegant aspect render it a very desirable object. It is, however, very impatient of root moisture.—(From Moore's "British Ferns.")

Old-time Gardening.

(Continued from page 25.)

Near the close of the seventeenth century Evelyn submitted what may be called the prospectus of a great work on horticulture, to be written by a body of capable men. It is to be found prefixed to "Acetaria," 1699, and is entitled "The Plan of a Royal Garden," and in the "Memoirs of Evelyn," but with a slightly different phraseology as "Elysium Britannicum."

The titles of a few of the chapters of this book that never was undertaken, give a good idea of the perplexity of variety in a garden at that period. Some of these may be mentioned, as knots, parterres, compartiments, bordures, trayle-work, banks, and embossments, terraces, walks, carpets and allies, malls, bowling-greens, groves, labyrinths, dedals, cabinets, cradles, close walks, galleries, pavillions, porticos, lanterns, and other relievos, topiary and hortulan architecture, fountains, jettos, cascades, rivulets, piscinas, canals, baths, artificial waterworks, rocks, grottos, crypts, mounts, precipices, venti ducts, conservatories of ice and snow statues, busts, obelisks, columns, inscriptions, dials, vases, pots, perspectives, paintings, Gazon-theatres, amphitheatres, echos, automata, hydraulic musick, apiaries, aviaries, vivaries, insects, verdures, perennial greens, perpetual springs, orangeries, hybernacula stoves, conservatories, coronary garden flowers and rare plants, medical garden, and stupendous wonderful plants; hort-yard and potagere, sallets, and vineyard.

These, and more, were either then or shortly afterwards to be found existing under the care of the gardener. Some were of long antecedent date, and the book was indeed intended to treat, without prejudice, of all styles and methods of gardening. Cabinets, porticos, topiary and hortulan architecture, with rocks, grottos, and crypts were novelties of the day, which in the succeeding century became not at all uncommon, far more common, in fact, than the pure Dutch, which seems not to have appealed with any great force to our insular tastes.

Town gardens still prevailed in this century, and up to the date of the great fire in London in 1666 citizens continued to have gardens attached to their houses. We gather from Pepys that not only had he a private garden in which he walked with his friends and sang songs of his own composing, with his wife and maidservant, or buried his parmezan cheese and choice wines for safety, but also at the Admiralty Office in Seething Lane there was a garden attached in which he talked business. He mentions the garden of a neighbour which was furnished with abundance of Grapes, and he tells how he stole Apples at St. James's.

Evelyn mentions overhearing a conversation between Charles II. and "Mrs. Nellie," who stood in a terrace in her garden, at the top of a wall, the King being outside. In "Old and New Edinburgh" is a copy of an old map of that city showing gardens arranged with much formality attached to the houses within the walls. At Norwich and at Spalding there are also records of town gardens where gardening was pursued with much success.

The public gardens of London originated early in the seventeenth century, the earliest being Spring Gardens, said to be so called from a statue that squirted water on the unwary who unknowingly operated it. Evelyn mentions something of the same sort in a Parisian garden, and Worledge gives a figure of one squirting water into the eye of a looker on. On account of unruly behaviour this garden was closed to the public in 1654. During the Commonwealth, Mulberry gardens were in vogue; Evelyn speaks of these very slightly. Vauxhall Gardens (from Fulke's Hall), but commonly called Foxhall, were situated in Lambeth, and were very popular.

It was sometimes called Spring Garden, as for example by Pepys: "I by water to Fox-hall, and there walked in Spring Garden," and concludes, while cheap it was also "mighty divertising"; but that he cared but slightly for it. He in another place tells how he went to Mulberry Garden, "and find it a very silly place, worse than Spring Garden, only a wilderness here that is somewhat pretty." Evelyn visited the latter in 1661, shortly after it was opened as the New Spring Garden, and we gather elsewhere that the ground was divided by walks of grass and sand in squares of twenty to thirty yards, enclosed with hedges of Gooseberries, whilst within were Raspberries, Roses, Beans, and Asparagus!

It also abounded in arbours, and the polite world went there to dance, to listen to music, and to enter into other pastimes of a less innocent nature. These public gardens were undoubtedly largely taken advantage of as places of assignation among the profligate, and we read repeatedly of Rosamond's Pond in St. James's Park being employed by members of the upper classes as a place for clandestine meetings.

The seventeenth century may be said to have witnessed the origin of the modern nursery. No doubt we find indubitable records of nurseries being in existence in the previous century, and all along the earlier part of the seventeenth it is clear that cultivation and distribution of florist flowers were to be found here and there all over England. Fruit trees and flowers were, however, the only subjects about which any definite information can be gleaned as being produced for sale. And I think, too, though the proof is not conclusive, that head gardeners in the more important places were accustomed to dispose of plants.

In Scotland it certainly was the custom to do so. In 1677 a book was published advocating the institution of nurseries and profitable gardens, and four years later the famous Brompton Park Nursery was started by four gardeners, to wit, George London (gardener to Bishop Compton), Moses Cook (gardener to the Earl of Essex), Field (gardener to the Duke of Bedford), and Lucre (gardener at Somerset House). A change was made in the firm in 1691, when Cook retired, and the two last named having died, Henry Wise, another gardener, became a partner with London. It is curious to-day to remember that while engaged as nurserymen and landscape gardeners these men still retained situations as gardeners.

The nurseries extended to one hundred acres, and we are indebted to Evelyn for a knowledge of their contents, he having prefixed to his edition of Quintiney's work on fruit trees an "advertisement" of what London and Wise could supply, along with an amount of lavish praise of their qualifications that is a curious exhibition of the good taste of a gentleman of Old England. It is to be found also in "The Compleate Gard'ner." It will suffice to say here that the nurseries possessed a "choice" collection of "Orange trees, Limon, Myrtill, Bays, Jasmines, and all other rareties and exotics requiring the conservatory"; "a very brave and noble assembly of the flowering and other trees; perennial and variegated evergreens and shrubs"; "store of Elms, Limes, Planes, Constantinople-Chestnuts, Black Cherry trees, &c."; "seeds, bulbs, roots, slips for the flowery garden." Fruit trees, especially Pears, were a speciality.

If we are to credit other people who mention these nurseries there must have been a stock of ten million plants for sale, and how such an enormous quantity of saleable material could be disposed of at the period in question is explained by the fact that the firm had charge not only of the Royal parks and gardens, but of all the chief gardens in England. They were, moreover, garden and estate designers, and when we consider the vast quantities of shrubs, trees, and fruit trees required to furnish gardens, wildernesses, &c., the solution is by no means difficult.

There is no apparent reason to question the credibility of contemporaries who describe London as having an intimate acquaintance with all kinds of vegetation, as well as a practical knowledge of its varied requirements, and I think it may safely be concluded that by no other means than that adopted by the nobility and gentry of entrusting the superintendence of their estates to London, with the consequent necessity of the firm producing enormous quantities of nursery stuff, could horticulture have acquired the solid hold it did at this period. The material supplied by the lesser nurserymen seems to have been most unreliable, especially as to its being true to name. While the very fact that London and Wise were responsible for years for the quality of the plants supplied, would augur well for them supplying an article beyond reproach.

The earliest mention I have been able to discover of a nurseryman in Scotland occurs in Reid's "Scots Gardener" (1683), in which the writer recommends James Wood, Hamilton, as a reliable person with whom to deal. It is not improbable, however, that Wood, like most of his English contemporaries, was rather a market-gardener or fruit-grower, combining with either of these callings that of a nurseryman, just as the once famous Southfield firm of the Renches, near Parson's Green, was managed.—B.

Hewell Grange, Worcestershire.

HEWELL GRANGE is one of the seats of Lord and Lady Windsor. It is situated near Redditch, in Worcestershire, set amid a fertile country, and not far from the famous fruit-growing centres at Evesham and Pershore. The county of Worcester is decidedly one of England's best and most interesting.

The first mansion of Hewell was built in 1712, but this was dismantled so recently as thirteen years ago, and part of the remaining walls were left standing, and are now bedecked with stray vegetation, which gives them the appearance of crumbling ruins reduced by sheer age; while the internal area has been made a croquet green. This old mansion was situated in a less commanding position than the present handsome edifice, with its fore-courts on north and south, and which commands a wide horizon. It is 260 feet long and 200 feet wide.

On the south-east side of the house, but at the distance of two hundred to three hundred yards, there is a piece of ornamental water fringed with *Phragmites* and other aquatic vegetation, and on all the other sides of the mansion save the south there is an extensive park with the great ancestral Oak and Chestnut trees one pictures as belonging to such places. The lake or ornamental water lies practically within the park.

The formal or French garden overspreading the ground on the south side has been the subject of praise by some, and of criticism by others. Naturally, the school of designers who call themselves landscape gardeners, complain that the formalism, the cropped-in Lime barriers or "hedges," and the geometrical flower beds edged with tall Box, and the straight paths intersecting the main divisions right and left, are not the features adapted to give the most beautiful effects, while the opposition base their appreciations on the old-world sentiments that are attached to pleached alleys and the artificial beds with their broad lines of Box. Personally we like both, when both are well set out, and the formal garden at Hewell, with its beautiful pillars and arches of clustered Roses and beds containing annuals, may well remain, particularly as *Liliums* and the nobler hardy plants here and there are being gradually naturalised in the glades of the beautifully varied grounds. It is remarkable that within a stone's throw from the limits of this geometrical garden the Bracken fern luxuriates in wide patches, intermediary with the *Rhododendrons* and numerous beautiful trees and shrubs.

One of the most recent extensive alterations and additions to the features of Hewell is the magnificent series of terraces laid out in grass and planted on either side with a Yew hedge. It well deserves the name of magnificent, but to call this creation a terrace is quite inadequate; yet we have no English word that can be used. It is a series of sloping terraces with grass steps at intervals, and the whole feature extends from the lake, across the French garden to a water-tower 140 feet higher up. The entire length is 2,000 feet; and when the Yew hedges have grown up the effect of this fine work ought, indeed, to be very imposing.

At the highest point of vantage, near the water-tower already mentioned, a maze has been planned, and Horn-beam is the subject chosen for the hedges.

Hewell has some notable trees, and one—an Umbrella Pine—is thought to be the largest in the country. At our visit, last summer, it measured 16ft high, and was growing vigorously. The specimen is a most shapely one, of a true pyramidal form, and is well sheltered by other conifers on all sides. There are some aged Cedars, and our notes of one show it to be about 60ft. *Pinus excelsa* in one case was 87ft high, with a girth of 8ft at 5ft from the ground; and 71ft in another case. An *Abies grandis* attains over 70ft. Amongst other interesting trees here may be mentioned specimens of *Cupressus macrocarpa*, *Abies pungens glauca* (young and doing well); a large Abele or white Poplar, very effective, in the direction of the lake; *Pinus pinaster*, and also some fine old Scots Pine; *Abies Webbiana* and *A. pindrow*, each distinctive, and many smaller subjects which do not call for special note, unless it be *Fitzroya patagonica*, which here attains 25ft.

The conservatories and the fruit and kitchen garden lie at a considerable distance from the ornamental grounds

surrounding the house, and are reached by traversing part of the park. One of the earliest things that one may notice inside the walls is the Rose garden with beds of various shapes laid in grass. Each bed contains one variety, the kinds represented being Liberty, Kaiserin Augusta Victoria, Clara Watson, Marjorie, Gustave Regis, Madame Eugène Verdier, Killarney, La France, and Anna Olivier. Only one H.P. is included, and that is the pink flowered Duchess of Edinburgh. Never had we seen Marjorie in such fine form as it was here in a sheltered corner bed, between Mr. Pettigrew's house and a wall. Clara Watson and Anna Olivier were each particularly beautiful, but the whole display was excellent, the result of generous and judicious culture. A few standards occupy the central beds.

The garden is walled-in, and on the walls (which have a broad coping) are fruit trees, fan-shaped for the most part, but which are being replaced by younger stock. Outside the walls are the herb borders and frame ground, merging off into the open pastures that lie all around.

Mixed borders of annual and herbaceous perennial plants profitably and pleasantly fringe the vegetable breaks, in which Celery occupied an unusually large space. A furnished appearance is given to the garden by the shapely bush Apple trees on either side of some of the walks.

The plant houses occupy the centre, and are about eighteen in number. In every department the most excellent results are attained, and indoor fruit crops, which we must surely concede afford the strictest test of a gardener's practical knowledge and application, were particularly satisfactory. But a son of the late Mr. Andrew Pettigrew, of Cardiff Castle, could not help having experience in this direction. It is not an uncommon thing for houses to be built over standing crops, and an example is seen at Hewell, where Mr. Duncan Tucker, of Tottenham, erected a structure over a large Negro Largo Fig tree. The tree is now in a good bearing condition. The Black Hamburg Vines were carrying eleven or twelve bunches apiece, each averaging 2lbs weight, while black and white Muscats and Lady Hutt are each favourites.

The Cotton-Plant (*Gossypium herbaceum*) is seldom grown for decoration in private gardens, but here was a stately row on the central shelf of one of the stages, the latter, by-the-bye, being of a sage-green colour—a neutral and harmonious shade. Miss Jekyll has advocated the employment of this colour, and this was the first occasion in which we had seen the suggestion put into effect.

Calanthes are successfully cultivated together with *Eucharises* and other warm-house subjects. A novelty appeared in the frame-ground in the shape of *Nemesia strumosa* grown in shallow pans and boxes, to be used a week or two later on the forecourts of the mansion. Cultivated in this special manner, the plants gave abundance of flowers, and the colours of these were intensely rich. Another feature of fresh interest was the culture of selected bulbs of the Tiger Lily in large pottery-ware basins, the ultimate handsome effect of the long-stemmed plants crowned with their flowers being easily imagined. These, too, were for placing on the forecourts during the period when the family were at Hewell in the autumn.

And another humble plant with which special care is taken is *Alonsoa Warscewiczii*; not that it is grown in pots or boxes, but from a sowing in the first week of March, the seedlings are pricked out into boxes and planted in well prepared borders early in June, at a distance of 9in to 12in apart. The plants fill out nicely, and at a first, distant glance, appear like *Salvia splendens*. They are very graceful, attaining a height of 2ft, with showy orange-crimson flowers. The *Belladonna Lily*, which was referred to on page 117 of the *Journal*, is grown out of doors by a wall here, in the same way as at Kew.

We have wandered from the houses, but it is interesting to note that Pines are still maintained, as they are indeed, in most of the large and notable gardens of Great Britain. Melons, too, are very beautiful; here you have an even crop of beautiful fruits, on healthy, shapely plants. Strawberries in frames are encouraged to yield their fruit just prior to the ripening of the outdoor crop, but they can scarcely be said to be "forced."

Those who delight in "true blue" *Hydrangeas* may be gratified to know that by adding a few crystals of sulphate of iron to the soil, Mr. Pettigrew succeeded in causing the blue development in the trusses of plants here, but the

effect was not apparent till the second year. Another lovely blue-flowered plant (an annual) is *Ipomœa rubro-cœrulea* var. Heavenly Blue, whose bell-shaped flowers are exceedingly bright and beautiful. The seeds in this case were sown in March and grown on for flowering in September. The slender, twining shoots are taken around a balloon-frame. A large share of the gardener's efforts is devoted to preparing a September display for the home-coming of the family, and subjects have to be chosen to fit in, so to speak, with that particular season. Still, another subject, the seeds of which had been sown in March, was *Torrenia Fournieri*, the growths of which were spreading rampantly in open-air frames in September. One of the finest features in the garden was a Thyme walk, edged on either side with *Campanula persicifolia alba*.

The main points of general interest having been reviewed (though inadequately) it may add to the quality of usefulness of these notes to append a list of the main subjects relied on for a September display. These include perennial Asters—*horizontalis*, *acris*, *cordifolius*, and others

Relationship of Woods to Domestic Water Supplies.

This subject has, for more than twenty years, occupied much of the attention of Forest Experimental Stations, especially in Germany, France, Austria, and Switzerland; and in view of its importance the conclusions arrived at may be usefully summarised.

It has been asserted, and theoretically the contention is doubtless correct, that masses of woodland increase the rainfall. The causes of this result are sought for in the reduction of temperature associated with forests, and in the greater absolute and relative humidity of the air in woods. But although it may be possible to obtain experimental proof by means of elaborate and long-continued observations in a region where extensive afforestation or deforestation is taking place, it may at once be said that such tree-planting as is practically possible in Britain can have no appreciable influence on the rainfall. Trees do, however, under certain conditions of the atmosphere, condense dew on their leaves and branches, and this effect may often be seen in the wet state of the ground underneath trees on a foggy morning, when the surface elsewhere is comparatively dry.

But the case is materially different where the fate of the rain and snow that fall on a tract of woodland is considered. The foliage, branches, and stems of the trees intercept much of the rain and snow so that it never reaches the ground at all, the amount so intercepted usually ranging from 30 to 45 per cent. of the total, but much depends on the character of the rainfall, and on the species of the tree. In a district of heavy annual rainfall a smaller proportion of the precipitations is caught by and evaporated from the trees than where the rainfall is light. Similarly in the case of heavy and long-continued rain, as contrasted with gentle showers; in the latter case, in fact, but little of the water reaches the ground through the leafy canopy of a dense forest. Then again much depends on the kind of tree, evergreens intercepting more water throughout a year than deciduous trees, and a larger proportion of the rainfall is evaporated from the leaves and branches in summer than in winter.

But although less rain-water reaches the soil of a wood than finds its way to the ground in the open country, the moisture in the soil is much better conserved in the former than in the latter case. Long-continued observations have shown that more water drains from a wooded area than from one devoid of trees. The greater abundance of water in forest soil, in spite of the trees intercepting a large proportion of the rainfall, is due partly to the reduction of evaporation owing to the exclusion of the sun's rays by the foliage, partly to the air in a forest being more humid, and

thus better fitted to discourage evaporation, and partly to the absorbent and retentive character of the decaying vegetable matter that covers the ground of a dense and well-managed wood. The lace-work of tree roots, too, that occupy the soil of a forest, offers mechanical resistance to the rapid surface-flow of water. It is also to be noted that roots penetrate to great depths, and when they die they leave holes through which water readily penetrates from the surface. The friable condition of the soil of a wood, too, permits ready percolation of water, whereas in the open country the denser character of the surface of the ground is less favourable to the entrance of water. The consequence is that streams in a wooded country are not so subject to rapid rises and falls, the flow being maintained more equably throughout the year. Where water supply for domestic or industrial purposes is concerned, the avoidance of violent freshets on the one hand, and scanty flow on the other, is alike desirable. Not only may the water of sudden and heavy floods be lost owing to the incapacity of the reservoir to contain it, but such floods have also the disadvantage of carrying much mud and similar material in suspension, and this gradually silts up reservoirs, besides entailing increased expenditure in filtering.

It may be pointed out that the water of a reservoir surrounded by well stocked woodland is not subjected to the same amount of violent agitation during gales as is the case when such sheltering agency is absent. The mud and silt deposited on the bottom, and especially along the margin, is consequently left compara-



Allosorus crispus, the Parsley Fern. (See page 158.)

—*Callistephus hortensis* (parent type of the China Asters, and fine for naturalising in woody glades), *Verbena venosa*, Phloxes, *Gladioli*, *Delphinium nudicaule* (scarlet), and D. Queen of the Blues (both spring sown), *Lobelia cardinalis*, Dahlias, Roses, Clematises, *Helenium Miss Mellish*, and others; Hollyhocks, *Lilium tigrinum*, Pentstemons (spring sown, treated as annuals), *Physalis Alkekengi*, *Tagetes signata pumila*, *Lavatera trinestris rosea*, Sweet Peas, *Brachycome iberidifolia*, *Erigeron mucronatus*, *Rhodanthes*, *Helichrysums*, *Ammobium alatum grandiflorum*, *Gaillardia grandiflora*, *Colchicum speciosum*, *Amaryllis Belladonna*, *Heliotropes*, *Pentstemon barbatus*, and *Nicotiana affinis*.

In tazzas or so-called vases, on parapets, there are Ivy-leaved and Zonal Pelargoniums, early flowering Chrysanthemums, *Lobelia erinus* (varieties), scented Pelargoniums, Fuchsias, Abutilons, *Salvia splendens*, Lilies, and Marguerite Carnations. Indoors about this season the early-flowering Chrysanthemums and *Lilium speciosum* are chiefly relied on. In winter there are late Chrysanthemums, *Begonia Gloire de Lorraine*, B. *Agathe* (for tiny jars), Poinsettias, *Dædalacanthus* and Jacobinias; while forced bulbs furnish most of the early spring display. —J. H. D.

tively undisturbed, with corresponding advantages in the matter of purity.

When a catchment area is covered with trees, and with the vegetable matter that accumulates on the surface of the ground, the water that reaches the soil as rain is impeded in its flow, and its evaporation is hindered, so that the general effect is equivalent to an increase in the size of the reservoir. It is also important to note that snow melts more slowly underneath trees than in the open country, so that at a time of thaw the snow-water is yielded up more gradually. Nor must the fact be overlooked that when snow in a forest melts, the ground absorbs the water to a much greater extent than happens in the open country. In the latter case the ground is probably frostbound, so that the snow-water cannot be absorbed by the soil, whereas forest soil, being protected by trees, never freezes to the same extent, and is consequently in a better position to absorb snow-water. The result is that not only does a forest mitigate the violence of floods, but the snow-water that flows from its area is less muddy than would otherwise be the case.

Forests not only affect the degree of moisture in soil, but they also exert considerable influence on the soil temperature. Although this influence is greatest at the surface of the ground, it is also perceptible to a depth of several feet. On the average of a large number of continental stations it was found that woods of various species and ages depressed the mean annual temperature at the surface of the ground by about 2.6deg Fahr., while even at the depth of 4ft the reduction of temperature was 2deg.

This general cooling influence is due to a variety of causes. The foliage of the trees excludes the sun's rays, the decaying vegetable matter that covers the ground prevents the free exchange of air between the soil and the atmosphere, while the water in the soil absorbs much heat without its temperature being affected.

While woods have a depressing influence on the mean annual temperature, it is found that this effect is much greater in summer than in winter. On the average of eleven German stations the July temperature of the surface soil in the forest was found to be 7deg Fahr. lower than that in the open field, whereas in December the former was rather warmer than the latter. Forests, therefore, tend to equalise the temperature of water collected in them, the temperature being slightly raised in winter, and markedly reduced in summer. This result would appear to be of considerable practical and hygienic importance where a supply of water for domestic purposes is concerned.

To the credit of forests is also to be placed the fact that they exercise a purifying influence both on the air and on the soil, germs of all kinds being markedly scarcer in a well-wooded district than in a similar extent of treeless country.—Board of Agriculture (Leaflet), 4, Whitehall Place, London, S.W., January, 1904.

Observations on Using Lime.

No matter in what direction one goes, the weather (and the war) form constant topics of conversation. The cultural difficulties of farmers and gardeners are at this season greatly intensified in consequence of the almost continuous downpour of rain. The outlook at present is serious indeed, and unless improved conditions soon prevail the effect on the condition of crops at harvest-time will be disastrous. Not only is the soil so sodden with rain as to prevent the sowing and planting of crops at the usual times, but there must also be a serious loss of nitrogen in the soil, which means a loss of its capacity to produce full crops without extra expense in manuring.

It is quite probable, too, that the continuous rains will considerably lessen the reserve of lime in soils, as under such conditions both lime and chalk dissolve quickly, and are washed into the subsoil. The absence of the necessary amount of lime in the soil is now considered a much more serious matter than formerly, because we have learned to understand something of its importance, and the various ways in which it affects the soil. Its action may be termed fourfold, causing, as it does, the rapid decomposition of humus, thus setting free plant food; it has a mechanical effect by rendering stiff soil more open and porous, it is a plant food in itself, and also a food for the busy bacteria, which perform such wonders in mother earth.

For the above reasons a little extra attention by the application of lime in moderate quantities when the soil is being forked only, before sowing and planting commence, will be labour and material well spent. A surface application to young crops before hoeing commences will undoubtedly be of value on many soils, and at the present time Plums and other stone fruits which have not been recently limed, should receive a dressing on the surface of the soil, at the rate of half a pound per square yard. I am convinced that Plums, as a rule, do not have enough lime.—ONWARD.

NOTES



Reading Gardeners' Mutual Improvement Association.

There was a large attendance at the last fortnightly meeting of the above association, when Mr. Winsor, foreman, Bear Wood Gardens, gave one of those practical demonstrations which have become very popular with the members. On this occasion wreath making was the subject, and two wreaths were made during the evening. The first was done to show the quickest, the other to illustrate the making when more time is available. The principal flowers used were Arums, Carnations, Lily of the Valley, Roman Hyacinths, orchids, and Chrysanthemums. A very useful discussion followed, in which many useful hints were thrown out by Mr. Powell, of Park Place. The only exhibit was some splendidly-grown plants of *Primula sinensis*, staged by Mr. T. Butcher, The Gardens, Greenbank, Reading. Eight new members were elected.

Annual Report of the Scottish Horticultural Association.

The secretary of this society, Mr. P. Loney, 6, Carlton Street, Edinburgh, has sent us the Report of Session 1903. The membership numbers 1,295 (the largest, we believe, of any horticultural association out of London), and is constantly increasing. A very progressive year's work is recorded; and an admirably varied syllabus of addresses and programme of outings for 1904 is provided. A feature of special interest is the association's address to Their Majesties the King and Queen on their visit to Edinburgh last year, and the King's gracious reply. At the Chrysanthemum Show there were 800 entries. A mere reference is made to the Queen Alexandra prize. The show this year will be held on November 19, 20, and 21. The invested funds at the end of December, 1903, amounted to £1,104 5s. 6d., an increase of £125 13s. 4d. over 1902. The digest of the papers read at the monthly meetings makes this little publication most valuable.

Old Mile End Nursery.

When strolling about modern Mile End, by no means an attractive suburb of London, it is difficult to imagine this place as the locality of a famous nursery, but the exact spot remains doubtful. It was closed early in the reign of Queen Victoria. In 1835 Loudon visited it, and found it was much smaller than at the time of its prosperity. There still remained a Salisburia, said to be the oldest in England; a venerable Magnolia, a Sassafras, some Liquidambars, a variety of Oaks, and several remarkably fine Green Tea plants, flourishing in the open air. The nursery had its origin about the middle of the eighteenth century, the proprietor being James Gordon (presumably a Scotsman), who had been gardener to Dr. Sherrard, of Eltham, who was a cultivator of exotics, and obtained several species previously unknown to Britain. In 1776 his two sons took over the nursery, subsequently one retired, and the other took two partners. The last possessor whose name is recorded was Archibald Thompson. A good many varieties were distributed from this establishment.—C.

Barnsley Paxton Gardeners' Dinner.

The twentieth annual dinner of the members of the Barnsley Paxton Gardeners' Mutual Improvement Society was held at the Queen's Hotel, on Thursday, February 18, 1904. There were about eighty members present, and enjoyed an excellent dinner. After dinner there were many speeches. The meeting was presided over by the president, Mr. Henshall. Among the speakers were Mr. W. Hoey, Mr. J. Parker, Mr. S. Shaw, Mr. W. Winter, Mr. Weatherhall, Mr. Dunsmore (Rotherham), and others. A presentation of a gold watch and chain was made to the president by the members of the society as a token of respect for his twenty years of office. Mr. Ballanger said the society was fortunate to have such a chairman as Mr. Henshall, who has been with the society since it was formed, and had interested himself in the work on its behalf. He handed to him the testimonial in recognition of his services. In response, the president in a very able speech, thanked them for the honour they bestowed on him, after which the meeting came to a close.

Presentation to Mr. T. W. Turner.

Mr. T. W. Turner, for a number of years general foreman in the Royal Horticultural Society's Gardens, Chiswick, was presented last week by the superintendent and students of the garden with a handsome marble timepiece as a token of their respect for him, and as a memento to carry with him to his new sphere of labour as Superintendent of Grounds, Royal Hospital, Chelsea.

Weather in South Perthshire.

There was a return of frost during the past week, from 5deg to 9deg being registered from the 15th to the morning of the 19th. Afterwards rain and snow showers alternated for two days, and Sunday was persistently wet throughout. Monday, however, was one of the brightest and most pleasant days of the past month, the thermometer standing at 42deg in the shade.—B. D., S. Perthshire.

Ealing Horticultural Society.

This society, which was founded as far back as 1864, has of late years undergone some vicissitudes of fortune owing to the changes of the district from country to town. Still, there is in the locality a strong desire to maintain the summer show, and at the annual meeting of members held on the 12th inst. the annual report showed that the finances of the society had improved to the degree that all debts had been paid, and there was a small balance in hand. The original date fixed for the show, namely, July 6, being found to clash with some important fixtures, June 29 will be substituted for it. It was referred to the committee to select a site for the show. It may be added that Roses are always a leading feature of the summer exhibition.

Artificial "Weeping Willows."

The artificial Weeping Willow at Chatsworth (says the "Manchester Guardian") is, of course, an example of an art which finds many examples in Italy. In the famous gardens of the Marchese Pallavicini at Pegli, near Genoa, there are several of these artificial trees, carefully erected at spots from which the finest views are to be obtained, with the unkind object of throwing cold water upon the unsuspecting visitor's enthusiasms. Nor is it from trees alone that streams of water are liable to spring forth in this unwelcome way. The same famous gardens are dotted with variations of the idea, while in a palace near Lucca, which was at one time occupied by an impecunious marquis of ancient descent, the entrance steps were so arranged that too importunate creditors ascending them were apt to be deluged with hot water squirted from the steps on which they stood, at the will of the noble debtor, who from a cunningly devised point of vantage was able to enjoy their discomfiture, and turn on hotter and yet hotter water at his pleasure.

South African Fruit.

Mr. Rhodes's ambition was to provide England with Cape Colony fruit during those months of the year when fine fruit is unobtainable here, and his dream is gradually being realised. One morning last week there arrived at Covent Garden Market the largest weekly consignment of fruit ever shipped from the Colony. Ten years ago twenty packages formed the average shipment, and these were sent by small farmers before Mr. Rhodes began to plant his trees. On the 16th inst. there arrived 4,400 cases of fruit, representing £1,500. The fruit was in good condition, and was the weekly shipment of eight companies besides the Cecil Rhodes Farms, the majority of them controlling farms in the neighbourhood of the Paarl Valley. Colonel Frank Rhodes is of the opinion that the quality and the quantity of the fruit can be greatly improved, and in view of the new competition from the Argentine Republic, which is increasing its shipments every year, great efforts are to be made in this direction. Under this scheme Peaches, Plums, and Pears are available for this country from January to April. That is what the Cape is providing. The luscious-looking Royal George is the favourite Peach, the Nectarines are small but delicious in flavour, and the big Plums and Pears come in infinite variety. In order to consolidate the Cape trade, all the companies owning farms ship the fruit to one agent—Messrs. G. E. Hudson, of Suffolk House. Even New York cannot obtain fine fruit at this time of the year, and 200 packages of Cape produce are being shipped there weekly from London, while Paris is similarly provided.

Birmingham Gardeners' Association.

Embodied in the spring session's programme of lectures, &c., for 1904 was that of a "Question Night," held on the 15th inst. There was a very good attendance of the members, who were evidently much interested in the various subjects found by the chairman (Mr. Walter Jones) in the "Question box," the principal being such as "Prevention and cure for the maggot affecting the foliage of Pyrethrums, Chrysanthemums, and Celery." The remedies recommended were such as diluted petroleum, sulphur, soot, and other insecticides.

Obituary: Mr. William Cole.

The death of this well-known horticulturist in West Middlesex, occurred at his residence, The Vineyard, Feltham, on the 16th inst., at the age of sixty-nine years. Born at Overton, Hants, on November 30, 1834, William Cole as a boy worked on a farm at Overton, where he saved a little money, and paid it to be taken into the gardens at Laverstoke, Hants. From there he went to Strathfieldsaye, Hants, under Mr. Johnson, then gardener to the Duke of Wellington, where he remained for some years; then to Cliveden, Maidenhead, under Mr. John Fleming. He then returned to Strathfieldsaye, and became foreman under Mr. Johnson, and on the occasion of the latter's death, the Duke of Wellington wished to appoint him head gardener, but the Duchess preferring a Scots gardener. Mr. Bell received the appointment, the Duke making Mr. Cole a handsome present as a solatium for his disappointment in obtaining the position. Mr. Cole on leaving Strathfieldsaye went to Messrs. Veitch and Sons' nurseries at Chelsea, and was sent by the firm as gardener to J. S. Budgett, Esq., then occupying Ealing Park. Here he remained some eleven years, and made an excellent reputation as a cultivator of specimen plants and Grapes, and was one of the principal exhibitors at the shows of the Ealing Horticultural Society and at other places. In 1875 he established himself in business at Feltham as a cultivator of Strawberries and Grapes for market, growing White Muscat in particular with great success; of late years chiefly Grapes, and up to the time of his illness taking a deep personal interest in the work. He was greatly respected both at Ealing and Feltham, and has passed away amid the regrets of a large number of personal friends.

Professional Gardeners' Friendly Benefit Society.

The thirty-seventh annual meeting was recently held at the Green Dragon Hotel, Guildford Street, Leeds. The management committee submitted the thirty-seventh annual report and balance sheet. The sickness experienced has been very favourable, only sixteen members having been on the sick funds; the total amount paid for sick benefits being £54 5s. One member has died during the year, making the total amount paid out of the Sick and Funeral Fund £64 5s., or an average per member of about 9s. 10d.

The Income for the year is	£161	3	1
The Expenditure for the year is	80	13	5
Which leaves a profit on the year's account of	80	4	8
This added to the previous savings of	1119	0	5
Makes the total funds of the Society at present	1199	5	1
Representing a value to each member of	9	4	6

The society has again received very liberal support by honorary subscriptions and donations towards the management fund, which have enabled the sum of £7 17s. 3d. to be transferred from that fund to the sick and funeral fund, as per rule 17. For this kind support the committee desire to express their hearty thanks. The present number of members is 130. Gardeners between 18 and 40 years of age, residing in any part of the United Kingdom, are eligible, and it is not necessary that candidates residing at a distance from the registered office should attend the meeting for their initiation. All arrangements can be made by correspondence. Membership being confined strictly to the professional gardener is a great advantage. The healthy occupation, greater immunity from accidents and other advantages of the profession, reduce the liabilities considerably below the average friendly society. Copies of rules and further particulars may be obtained upon application to the secretary.—Signed on behalf of the committee, JAMES R. GROUNDWELL, President; GEORGE CARVER, Secretary, 75, Northbrook St., Chapel-Allerton, Leeds. December 31, 1903.



Free-flowering Varieties.

Below I give a list of varieties that are especially adapted for culture on account of the freedom with which they produce their flowers. Many persons with limited glass accommodation cannot cultivate those varieties suitable for large blooms; the free flowering type is then most serviceable. Even where large blooms are grown for exhibition, these free flowering sorts are also required in considerable numbers. To avoid repetition in colour description I have placed them, as far as possible, in blocks of one colour.

Commencing with white flowered varieties, which generally are the most in demand, I cannot do better than recommend the following:—Niveus, Elaine, Mme. Carnot, Mdle. Lacroix, Mme. Ad. Chatin, Miss Anna Hartshorn, Mme. Phillip Rivoire, Mrs. Simpson, Mme. Herwege, Princess Victoria, L. Canning, Mrs. H. Weeks, and Western King. Yellow: Phœbus, W. H. Lincoln, Mrs. S. Fogg, R. Hooper Pearson, Golden Prince, Sunbeam, Soleil d'Octobre, Lizzie Adecock, Edith Tabor, Kimberley, J. R. Upton, G. J. Warren, Miss Edith Pilkington, Mrs. W. Mease, Scottish Chief, and Modesto.

Other colours are: Bertier Rendatler, yellow, shaded red; Etoile de Feu, orange red; Mme. Felix Perrin, soft rose; Source d'Or, bright orange red, shaded gold; William Holmes, rich crimson; Australie, rosy amaranth, silvery lilac shading; Charles Davis, yellow and bronzy buff; Lady Hanham, golden cerise; Edwin Molynceux, crimson and gold; Etoile de Lyon, lilac rose, shaded silver; G. W. Childs, rich dark velvety crimson; Henry Weeks, rosy crimson, flushed carmine; H. J. Jones, bright crimson; Lord Salisbury, yellow suffused with crimson; Mrs. A. R. Knight, golden bronze; Rev. W. Wilks, bright rose; Vivand Morel, bluish mauve; Roi des Précoces, dark crimson; Violet Lady Beaumont; W. R. Church, rosy crimson, bronze reverse; Exmouth Crimson, crimson; Sensation, rich orange, shaded bronze; Lord Ludlow, yellow, edged and lined crimson; Henry Perkins, reddish crimson, flushed yellow; M. Louis Remy, chrome yellow; Pride of Madford and Pride of Exmouth, white, delicately shaded with pink.—E. MOLYNEUX.

A National Gardeners' Association.

It is with the greatest satisfaction that we are able to say that, as the result of the second general meeting to consider this scheme, and which was held in London last Tuesday afternoon, there is every likelihood of a national gardeners' association being formed, and that on the widest possible basis. Our space is limited, and it is therefore necessary to compress our notes of about two hours' speechifying, and confine ourselves merely to recording the remarks there made. We may return to the subject at another time. The matter is one of the most important gardeners have before them at this juncture, and on the success of the new form of the scheme will largely depend the welfare of the gardeners of the future.

About two dozen persons attended the meeting—quite sufficient for a useful discussion. Mr. A. Dean, hon. sec. to the committee which had had the matter under consideration, was absent through illness. Mr. Owen Thomas was elected to the chair, and Mr. Geo. Kelf read the lengthy minutes of the December meeting. Mr. W. H. Divers was called upon (as the originator of the movement) to make a statement. He had written to Messrs. R. Barnes (Eaton Hall), Whillans (Blenheim), Gardner (Woburn Abbey), Hazleton (Knowsley), Sutton (Cheveling Park), and other prominent private gardeners for their opinions. These were all favourable to a workable scheme. To test the feeling of the meeting assembled, he proposed a resolution to the following effect:—

"That this meeting of horticulturists is of opinion that the time is favourable for the formation of a private gardeners' association for the promotion of the well-being of members in all matters pertaining to their daily life and labours.

This was seconded by Mr. J. Jaques, who said that all other professions have a central rallying point. Mr. Divers again observed that the objects would specially be to try to prevent overcrowding in the profession, and to improve wages. Many gardeners were cuffed about all through life from pillar to post, and at the end had to subsist on the charity of more fortunate fellows.

Mr. Owen Thomas remarked that the average head gardener's

position had fallen greatly during the past thirty or forty years. A situation worth £2 per week brought 300 or 400 applications. Could this not be altered? He proposed making a barrier to exclude the sloths and dullards by imposing an examination in theory and practice. All young gardeners at the end of their first year in joining the association would require to pass this ere being registered. This would induce men to study, and would debar the unqualified—the dullards and drones. Dr. M. T. Masters thought the populace generally expected too much from examinations. These, however, would show that the men had a love for, and interest in, their work.

Mr. J. Weathers expected failure to the association were it to be confined to private gardeners: it should embrace all ranks. Gardening was of many grades, and is becoming more highly specialised each year. Was there to be no association for the commercial horticulturists? He cited the case of a park superintendent, devoid of training, who was receiving £400 per year. Abuses like this ought to be checked.

Mr. Geo. Gordon felt disappointed that the committee had submitted no tangible scheme that gardeners could go upon. He agreed that an association should embrace all classes and ranks of gardeners—public, private, commercial. The "middle men" in gardening, those receiving, say, 25s. per week, ought to be remembered, and the evils of the bothy system should be diminished. Lastly, a strict registration should be established. He then proposed an amendment to Mr. Divers' resolution as follows:—

"That this meeting, having heard the report of the head gardeners' committee, resolves to form a provisional gardeners' association, and to elect a provisional committee to prepare a scheme to be submitted at a future meeting." [About the time of the Temple Show.]

Mr. W. Watson, curator, Royal Gardens, Kew, seconded, and spoke for a considerable time, his matter and manner being convincing. He had been in communication with several gentlemen on the subject, and he had decided that the organisation ought to be as wide as possible. Twenty-five years at Kew had proved that bodies of gardeners *could* be organised. Gardeners' grievances were of long standing, and employers had grown up in the knowledge of them, and care would be needed to change *their* point of view. Wages, especially the wages of under gardeners, would have to be raised. To effect a cure, begin low down; begin at the roots. Large numbers of head gardeners were fairly comfortable, but what of the young men? Many can hardly keep themselves respectable. Kew has a democratic system: the under gardeners are made to feel that they are *men*, and of value in the garden. "One must not grind them down." Too often gardening is made a dumping ground for duffers from other professions:—the weak in intellect, the weak in body. A fence is wanted round the profession, with only one door. Mr. Watson, by way of illustrating his point, sketched the Kew system of training.

He summarised the main objects of the proposed association: 1, Registration; 2, regulation of wages; 3, regulation of working hours. The last would call for little anxiety: the gardener, like the doctor, is prepared for calls out of hours. In the matter of wages: Let no employer be supplied with a capable man at a less wage than 30s. per week with house. Kew refuses a less sum for her gardeners, and though difficulties arise from time to time, employers are beginning to realise the worth of good men. Better one well-trained man at 30s. than two "duffers" at 15s. each. Kew journeymen receive 21s. per week (no bothy), and sub-foremen 27s., the same wage as journeymen in the London Parks. First-class foremen in these parks get from £2 to £2 10s. Paying these wages, public bodies are either guilty of "wicked extravagance," or else private gardeners are greatly underpaid. Regarding the question of registration, Kew obtains a full professional history of each of its men, and when they leave their doings are still watched and recorded in the *Journal* of the Kew Guild. The knowledge that eyes are on them acts as an incentive to the men to do their very best; and the effect is markedly apparent.

Regarding the commercial gardener—the employés in nurseries—they may be said nowadays to lead the profession. Many capable young men are "champing the bit" in private gardens who might do better by entering the domain of commercial horticulture. In conclusion, Mr. Watson said that an adverse vote on the amendment would have no effect on their course of action. They had set themselves determinedly to form an association, and they meant to succeed. In that spirit they went forward.

Mr. Divers, having been asked if he would omit the word "private" from his clause, and so leave his proposition to read that *all* gardeners would be eligible, said he could not, especially in view of the fact that a number of the committeemen were absent. He must remain consistent.

Mr. J. Simpson, Croydon, supported the amendment. Mr. J. Jaques asked how many Kew gardeners could train a Peach tree!—a diversion seriously meant, but only laughed at by the company. The answer was, "All can." Mr. C. H. Curtis supported the amendment; as did Mr. Drost, nurseryman,



Model Spikes of Delphiniums. (See page 158.)

Richmond, who deplored the low wages paid by many retail firms, and which amounted to "sweating." The members of these firms nevertheless contributed liberally to the charities, showing that they had still the good of gardeners at heart.

On the motion being put, the amendment was supported by all except four, and put again as a substantive motion, was all but unanimous. The following provisional committee, representing all sections of horticulture, was elected, with power to add to their number:—Messrs. Geo. Gordon, R. Hooper Pearson, H. J. Cutbush, F. Sander, E. Rochford, Peter Kay, W. Watson, C. Jordan, A. Dean, J. Weathers, W. H. Divers, E. Beckett, and C. H. Curtis.

A vote of thanks was made to the committee for their labours.

The Inquiry into Fruit Culture.

Scotland.

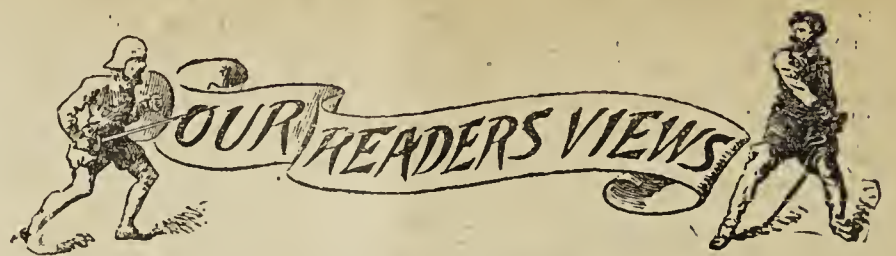
A Departmental Committee on Fruit Culture having been appointed by Government, a meeting of fruit growers, nurserymen, and others interested in the home development of fruit production was held in the rooms of the Highland and Agricultural Society, George IV. Bridge, Edinburgh, on Tuesday afternoon, the 23rd inst., to meet and confer with Mr. Hodge, of Blairgowrie, the Scottish representative of the Committee. Mr. John Methven, nurseryman, Edinburgh, occupied the chair, and amongst those present were Mr. D. P. Laird, Mr. James Fraser, Mr. W. H. Massie, and Mr. Jas. Grieve, nurserymen, Edinburgh; Mr. McHattie, of the Edinburgh City Gardens; Mr. Whytock, Dalkeith Palace Gardens; Mr. Smith, gardener Oxenford Castle; and Mr. Kidd, gardener Carberry Tower, as private growers. The market fruit growers present were numerous: among them were Mr. R. Macfarlane, East Linton; Mr. Wm. Baillie, Haddington; Mr. John McLaren, Ballenerieff; Mr. J. Wright, Preston; Mr. Jas. Scarlett, of Sweet Hope; Mr. George Sinclair, East Linton; Mr. Murray Thomson, &c., &c.

Mr. Hodge made a short statement as to the objects of the meeting, and invited expressions of opinion from the gentlemen present as to the prospects of extended fruit culture in the Edinburgh district, and the difficulties and hindrances which were in the way. A large number of gentlemen spoke, and the points of view from which the subject was approached were many and varied. A generally held opinion was that in the matter of small fruits, such as Strawberries, Raspberries, Gooseberries, and Currants, Scotland could hold her own, both as to quality and productiveness, and could not only be self-supplying, but could send large supplies to the large city centres of the South if railway rates and other conditions be adjusted.

With regard to Apple culture, there were many more difficulties, and the opinions expressed as to the causes of failure were numerous and varied. On one point every speaker was agreed, and that was that Scotch grown Apples, especially cooking sorts, were infinitely superior to those of any other nation. Amongst the hindrances, the chief was the undesirable nature of tenure of land in Scotland. Landlords would either not let land for market garden purposes, or the rents and conditions were prohibitory. A few years ago an Act was passed giving market gardeners compensation for all permanent fruit trees and bushes which had bettered the position of present holders of land, but had through its drastic conditions, made landlords very chary of letting land at all where such heavy claims for compensation could be made at the close of a lease. Other difficulties, such as small birds, want of shelter, proper storing houses, cheap transit to markets, diseases, and insect pests were also mentioned.

One speaker pointed out that most holdings in the Lothians had had fruit trees too long on the same land, and that fresh plantations were urgently needed. Mr. Whytock exhibited fruit of twelve different sorts of Apples, of which he had still good supplies, and stated that though the season of 1903 had been the worst for fruit for forty years, he had had a fair crop, and had been able to supply daily a very large family from the autumn till now. Mr. Whytock had no fears but that by good cultivation, regular top-dressing, and care, first-rate crops of good quality would be the rule and not the exception. Other speakers expressed the opinion that the more showy, though not so good, Apples of America and other foreign countries prevented the ready sale of home fruit.

Mr. Hodge thanked the gentlemen who had spoken for the trouble they had taken to attend the meeting and express their opinions. He also gave some very interesting details as to fruit culture and the tenure of small holdings. He said that the Blairgowrie district had been found so suitable for the growth of Raspberries that growers were confining themselves almost exclusively to that fruit. Mr. Hodge asked the meeting to name a representative from the Edinburgh district to give evidence before the Departmental Committee. Mr. George Sinclair, market gardener, Prestonkirk, was appointed.



Gardeners and the Study of Botany.

Never was a greater truth expressed than in the words (in the notes on page 92): "How many are there who regard botany for young gardeners as all nonsense?" In all my experience of young gardeners I have never met with but one who evinced the most casual disposition for the veriest rudiments of botany. I am not by any means a botanist myself, but I am not ashamed, if it is egotism, to say that it has formed, without interruption, something like a passion throughout my life from my earliest remembrance. And, be it for good or for evil, it was the cause which decided for me the donning of the blue apron. At that time I saw that gardening without botany was as little interesting to gardeners as the ploughing of a field was, or is, to the passive intellect of the ordinary ploughman. But how different did I find matters to exist! The poetry of my dream was rudely tossed, but was not overthrown. This was my first great disappointment in gardeners. Did I lift a weed from before the hoe, my fellows would have some complimentary reference to Dr. Buchan No. 2, and a loud laugh at my expense.

It was amusing, however, to find how apparently earnest the attention was focussed on a subject if only one of my chums were present. Often I attempted a little lecture on the subject as its merits deserved, but I found it as hard to convert my associates to botany as it proves in the mission field to convert Judaism to Christianity. In those days there were no Saturday afternoons; but that did not matter, for "where there is a will there is a way," and on the strength that my unbotanical friends would discover that a place for refreshment was on the way, I often persuaded one or two of them to accompany me to some bog or fern den, five or six miles distant perhaps. And still, when time permits, there are few subjects that I more fully enjoy than a day on the moors and bogs, or in the glens and dales of the district, discussing Nature's endless wonders and treasures.

I also fail to understand how young gardeners cannot rouse themselves to take an interest in reading botanical literature. It is the very opposite in character to what they generally say they find it, namely, dry as dust. From careful observation I fear much of this apathy is due to a happy-go-lucky form of indolence, greatly fostered by the extremely unnatural system of bothying or housing men as at present practised. This system, as is well known, is inimical to all that is refined in man's nature. The restraints of home and other society are rent asunder, and the man stands as near the aboriginal specimen as an enlightened twentieth century civilisation can well afford to permit. However, there are indications that the time is not far distant when our British gardeners will have at least a smattering of the all-essential sciences.—DIGITALIS.

Good Out of Evil.

Generally speaking, the fruitless condition of trees last year was looked upon as being a great misfortune. The echo of the no fruit wail was heard on every side, and both buyers and sellers, growers and consumers, combined in one universal grumble. It was not until recently that a certain light was shed on the matter that had never occurred to me before. A friend, who is a fruit grower, and has been hit as hard as most of us, suggested that it might be all for the best in the long run, as the trees have had a rest. Has any reader ever thought of this as he gazed at his fruitless, and for the time being, profitless Apples, Pears, Plums, or Cherries? Rest, you say, but surely the trees have time for that during the winter, and need no recreation during the season when they ought to be bearing. It may be so, but Nature has ways of her own, and it is a generally accepted theory that trees cannot be expected to bear heavy burdens of fruits every year. Some try their best to do it, and if by frost or some other means their endeavours were not occasionally checked, their constitutions would suffer.

I carefully watched some weakly fruit trees last summer, and am convinced that they have benefited through the rest they have had. The trees in question are of varieties which bear freely as a rule, but do not make much growth. In the spring they were covered with bloom, and I knew enough of human nature to assert that if those blooms had developed into fruit the latter would have been allowed to stop on the trees no matter what they suffered through the strain. But Dame Nature took the matter in hand, and frost destroyed the blossom. The consequence is that the trees, relieved of the strain and helped by the

season's moisture, have made vigorous growth, and look better in health than they have ever done before. In other words, those trees have collected and stored natural forces that must be of assistance to them in the future, and what has happened under my own personal notice must be general throughout the country. Rest; yes it refreshes and invigorates us all, and because one sleeps well every night that is no reason why we should not occasionally take it easy in the daytime.—G.

Notes from Khartoum.

The following letter was written on February 2: "This place suits me well, and now it is very cold, though the thermometer only goes down to 55deg F. During the last three days there has been a gale of north wind with plenty of dust, which makes it cold, and owing to its being so clear and keen, one wakes up and expects to see a frost. The moon is full, and the night seems like day. We all have slight colds now, and hope for warm days. The poor Sudanese get thawed about 9 a.m. Poor beggars! they do feel it, and no mistake. . . . On Friday next Princess Henry of Battenberg arrives for four days, when there is to be a flower show, gymkhana, regatta, and the laying of the foundation stone of the new church.

"Peter Barr has been here, and, I think, enjoyed himself. He was a proper tourist, and was soon known. I spent several evenings at the hotel with him, and of course showed him round the gardens here and went to Kerreri with him. No doubt he will be telling you what a sandy desert this is. The Nile is at its lowest now, and full of sandbanks, that make it difficult for navigation and getting water. It is over 25ft lower than in September.

"I have a fine show of vegetables from Veitch's seeds, especially Tomatoes and Beetroot. We have all the English vegetables ready now, though after March we shall not be able to grow them owing to the heat. Potatoes have done well, and I dug the first on Christmas Day. Bougainvilleas, Antigonon leptopus, and Brugmansia grandiflora are fine now. I have sent for one pound's worth of the best Cannas, as a big show is wanted next year. Helianthus argyrophyllus and Asclepias curassavica are the best things I have for general use here. . . ."

Stoke-hole Terrors.

There is no need to recount all that goes to form the several disagreeable features of stoking; they are too well learned from day to day. A recent visit to a gardening neighbour provided an instance derived from the stoke-hole such as I have not previously seen or heard of, neither had my neighbour. Anthracite coal affords the subject. Among the fuel supplied by a local coal merchant were lumps which by weight suggested iron ore rather than anthracite, and the user, unsuspecting the nature and quality of the fuel, allowed these presumed ore lumps to pass unceremoniously into the fire chamber. The trouble began almost simultaneously with its use, and was found in the difficulty in removing the daily formed "clinker." This grew from day to day, until further aid and advice became a necessary and a serious matter. The boiler, a very large "Climax," provided with massive solid firebars, has a large extent of heating to effect, and consequently the requisite amount of fire employed sets up a heat sufficient to change this new type of coal into that of molten iron residue. In this state it welded the bars together into an almost solid mass, absolutely beyond the power of the stoker and his tools to remove. The only course open was to call in the aid of the nearest blacksmith, and with bars and chisels remove the whole of the firebar base and replace with an entirely new set.

It cannot be denied that experiences of this sort inflict much unnecessary expense, worry, and loss of time, and the prospect of a similar recurrence is anything but peaceful for those in charge. The nature of the molten mass gathered on the bars necessarily caused an investigation into the cause, and this was found in unsuspecting lumps mingled with the fuel. Had fate decreed that in this instance the firebars had been water tubes instead of being solid the trouble would not have been so expeditiously disposed of, and the nature of this ore deposit is such that no hammer, bar, or chisel can affect it. In its liquid state it passed through the interstices or air spaces, and, in the process of cooling, closed these up, thus effectually and absolutely defeating the duty of both fire and workman. Needless to say, a close watch was made for any further offending lumps, and fortunately the stock was but a limited one of so inferior a brand.

If the same seam of coal has passed into other gardens probably others may have had a similar experience; but in this instance future orders will not be entrusted to a coal merchant who, innocently enough, perhaps, was responsible for so much inconvenience and loss. It would be interesting to learn whether any other *Journal* readers have gained similar experience. Duplicate boilers are held to be a source of safety in cases of emergency. They would certainly have afforded no help in such

a case as this, for both would have suffered similarly, and both have been put out of use together, assuming they were both at work. The seriousness of a breakdown in winter due to collapse of heating plant is all-sufficient, but when there is added to this the risk of casualty due to the fuel employed the worry is markedly greater.—W. S.

"Collard" Cabbage.

Regarding the term "Collard" in connection with Cabbage, in answer to "H. A." February 18, it may be additionally interesting to your inquirer to know that "Collard" is a corruption of the French word Colewort, also called "Collets." The genuine Colewort or Dorsetshire Kale being nearly extinct half a century ago, as far as I am cognisant, Colewort was the general term. A special variety of dwarf and early Cabbage was utilised for the purpose, and no other kind of vegetable was more useful or appreciated at the table of the rich man than the quickly formed and tender heart of the Colewort, more especially, too, after the Pea and Bean season ended. The Rosette Colewort, since the period alluded to, has come into prominence, and Early Market—owing to its compact habit and turning in quickly—is also excellent for the purpose. A good brake of Coleworts was considered nearly as invaluable as one of early spring Cabbages. I am under the impression that the Colewort is not so much in vogue nowadays as formerly. Perhaps the introduction of Veitch's Autumn Giant Cauliflower may be chiefly responsible for this.—G.

Manures, Natural and Concentrated.

The facts and figures supplied by Mr. Willis on page 112 I thought very interesting, and I think many beside myself will be surprised to find so great an expert admitting the value of animal over and above that of artificials in supplying the necessary constituents that are required to grow good Plums. There is scarcely a doubt that of all manures none can approach, certainly none excel, the farmyard store when this can be had in sufficient quantity and of a good quality. There never was a time when artificial manufacture had so large a sale as at the present time, but I look upon their value as being far greater used in conjunction with animal solids than alone. Land that is stinted of good animal manure cannot be maintained under any system of chemical concentration, no matter what the nature of the soil may be. Heavy ground is rendered still more heavy because nothing is introduced to break up its density, and open the pores, as it were, for roots to ramify and water to percolate through them. Light soils, on the other hand, because of their porosity, carry manurial constituents through them easily when, as in last year, there is much rain, and thus it becomes, in familiar language, hungry.

In droughty weather, too, there is no readily soluble matter derivable from artificials, all authorities agreeing that moisture is the all-important necessity to give useful effect to the various dry manures, concentrated or simple. Many experiments have been conducted bearing on the use of manures and their relation to crops, but the majority still agree that nothing acts so magically, or proves so lasting in the soil, as good animal manure. Those who are limited in their supply of stable manure are by stress of circumstances driven to the use of artificials as a necessity; but, as I have already said, the universal laws are Nature first, compound after, and the extent of the latter's use is gauged by the available supply of the other. Under-glass culture is that which affords the better means of getting the best return from these concentrated manures, because here there is always the needful state of moisture present to provide soluble matter.

In glass culture, too, they form so easy a means of stimulating renewed and maintaining normal growth in the case of restricted root areas—either in pots, boxes, or borders. Their use and purpose is often that of encouraging surface root action, and when furnished, to support it. In the matter of Vines, for instance, there is a great value in enticing roots to the surface; they seem then more contented, and less prone to emigrate into unknown and uncongenial areas, and the law of roots seem to be that of hunting for what they have not easily available and close at home.

It is difficult to over-estimate the value of humus in the soil derivable from anything Nature provides, and the tone of Mr. Willis's latest contribution lays most important stress on this, and coming as it does from one so wholly conversant with the all and everything connected with soil feeding is bound to enlist the sympathies of the many who have wavered between the one and the other, natural *versus* chemical. No one is likely to disparage the use of dry manures because the balance of favour goes to the animal solids; rather its use might be strengthened, because in conjunction there appears a probable accentuation of constituent, from which the crop, present and successive, must benefit.—WILTS.



Apple, Adam's Pearmain.

This is a very distinctive Apple, generally about the size of an average King Pippin. The skin is slightly rough and dry, of a bright yellow, with coppery red, striped deeper red, and spotted and patched with russet. The flesh is tender, of a sweet, rich flavour, quite first-class, and it has a season extending from November to January. The tree, which is of average fertility, has a compact habit, and the growth is moderate. We do not think anyone can do wrongly to include Adam's Pearmain for dessert purposes. It well deserves a wall.

Notes on Apples.

I am quite prepared to be told that the first variety upon which I propose to offer a few remarks is out of date, and by many sorts that we now possess, completely outclassed. In many respects this is no doubt true, for

DUCHESS OF OLDENBURG

is by no means a new Apple, and by no stretch of the imagination can it be correctly described as a really first-rate variety. Yet it has merits which entitle it to some consideration for home consumption. It is too soft for a market Apple, travels badly, and does not keep well when gathered. For its cropping capabilities in cold, wet soils and districts one or two trees should be planted for private use. It is really a delicious cooking Apple, and though our friend, "W. R. Raillem" would spurn it for dessert purposes, owing to its lack of sweetness, I have known it appreciated for table by some persons, and its appearance in good seasons leaves little to be desired, especially the fruit from young trees. It is, moreover, one of the best sorts for jelly that I am acquainted with.

POTTS' SEEDLING

is an Apple it has been the custom of some to praise in and out of season. In heavy soil in the Midlands I have found the variety very disappointing. Not only was growth poor and slow, but fruit was produced in very small quantities; on the other hand, planted in the warm, dry soil of Surrey growth and fruitfulness were everything that could be desired. Fine samples sell readily in the markets, a capital cooking sort, but one I should not recommend to be extensively planted without a first trial.

COURT OF WICK.

Court of Wick? Yes! I know it is dreadfully old, it is also lamentably small, and there is something about the texture that is far from commendable. But it is a late dessert Apple, and of these we have not too many. Moreover, the tree is naturally a very late bloomer, and frequently escapes frost when many other sorts are destroyed. Given my own way I should always have at least one tree of this, for though the fruit may be small, it is very pretty when ripe, and of taking appearance for table, and though we have better varieties, this one is not to be despised in a bad season.

PEASGOOD'S NONESUCH.

A shy sort! I hear somebody exclaim. This very fine variety has that character I am well aware, yet I have seen it in the Surrey fields bending the branches of young trees to the earth beneath a load of brilliantly-coloured fruit. These trees were rationally treated in pruning, the main growths allowed to extend, and allowed ample room for light and air to pass freely amongst them. I am confident that if many of our so-called shy varieties were allowed to develop in a more natural manner, and were not continually hacked back so ruthlessly, we should hear less of shyness and non-bearing. So, with this grand Apple, "give it its head," and behave generously to its roots, and it will, I have no doubt, crop as well as many others.

Thus far but four varieties have been mentioned, but if time permit I may have something to say in connection with other sorts; in the meantime some of the *Journal* contributors may have a few remarks to offer upon this important subject. These will be welcomed by no one more than—PROVINCIAL.

Primula, Holborn Blue.

As mentioned by us on page 137 of last week's issue, the first mention of a blue Chinese Primula occurs in the year 1882. Messrs. Carter write pointing out that the Primula was their Holborn Blue, which received a first-class certificate on January 10 of that year; also that it emanated from their nursery at Forest Hill, near London.

Societies.

National Fruit Growers' Federation.

The usual monthly meeting of the council was held at the Westminster Palace Hotel on Monday, the 15th inst. The following were present: Colonel C. W. Long, M.P., chairman; Messrs. J. Idiens, Evesham; C. D. Wise, Gloucestershire; H. F. Gating, Herefordshire; W. Idiens, Cambridgeshire; Hon. and Rev. A. Baillie-Hamilton, Guernsey; S. Boorman, Surrey; F. Smith, T. May, A. Meskin, A. S. White, W. Horne, and Percy Manwaring, from Kent; A. H. H. Matthews, secretary to the Central Chamber of Agriculture, and A. T. Matthews, secretary. Communications were read, and twenty-five new members were elected. The coming departmental inquiry into the fruit growing industry was discussed, and in response to an invitation from the Board of Agriculture an official witness to represent the Federation was appointed.

An important discussion took place on the question of the assessment of agricultural land being raised when planted with fruit. A typical case was brought forward from Kent, in which the rent is £120, and, because it has been planted with fruit trees the income tax assessor raised the assessment to £358, which was maintained by the commissioners, and from which decision the tenant was told there was no appeal. Mr. C. D. Wise said this was a mistake, and that such cases could be carried to the higher courts. He also gave two instances which had occurred in his neighbourhood, when similar attempts to raise the assessment had been successfully resisted. Another well-known case in Norfolk was cited in which the tenant had gained his case on appeal. Mr. Thos. May said that such land should be treated as farm land under Schedule B, and mentioned a case at Bromley when it was so decided. The council agreed that the whole subject required careful investigation, and it was referred to the departmental inquiry for consideration.

The Railway Advisory Committee then presented a report, stating that the Great Western Company have agreed to place a few of their ventilated fruit vans, now only used on passenger trains, on the goods train service on trial, the Advisory Committee to report on their suitability. The van is an excellent one, and a very great improvement on the open trucks which have to be sheeted. The railway authorities admit that they will also save much time by dispensing with the sheeting, and that they will thus be able to run the trains more punctually. This being the case there is every hope that sheeted vans will soon become things of the past.

The Midland Company have been asked to add torpedo ventilators to the roofs of their passenger fruit trains, and so prevent much damage from the heating of soft fruits, which also leaves a smell in the van detrimental to the next load. Mr. Eaton, the superintendent, has promised careful consideration to this suggestion. The committee has followed up the question of evening special passenger trains to pick up fruit from sending stations, and so enable late afternoon picking of soft fruit to be performed, and the fruit landed in northern markets in the morning almost equal to morning picked fruit. Revised passenger and goods service rates have been issued by nearly all the companies in pamphlet form, handy for the pocket, enabling the grower to see at a glance if it would answer his purpose to pay slightly more, and so catch an earlier market. All these matters were brought before the Board of General Managers by the deputation from this Federation about fifteen months ago.

Various other questions affecting the industry which have been dealt with by the council were again considered, and it was thought best to leave them for the consideration of the coming Departmental Inquiry Committee. The council expressed the confidence they feel that their interests will there be in good hands, the President of the Board of Agriculture having expressed his pleasure at the work of the Federation. Hopes were felt that the growers would now recognise the value of combination as a means of making known their wants, for which the Federation is so well adapted. It was decided that in future all members should be welcome at the meetings of the council, Monday, March 14, at 2.30 p.m., being the next fixture.

Royal Horticultural, Drill Hall, February 23rd.

The meeting was exceedingly rich, varied, and interesting, orchids being prominent, as well as ferns, hardy spring flowering plants, forced shrubs, Palms, Primulas, Cyclamens, and Italian Hyacinths. Owing to the gardeners' meeting being held in the afternoon, we were unable to be present at Mr. Lewis Castle's lecture on "Pomology."

Fruit and Vegetable Committee.

Present: Mr. George Bunyard (in the chair); with Messrs. W. Poupart, Jos. Cheal, S. Mortimer, E. Beckett, Geo. Kelf, H. Markham, J. Jaques, H. Parr, F. Q. Lane, G. Reynolds, John Lyne, W. H. Divers, James H. Veitch, and Owen Thomas. There was no exhibit before this body.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the chair); and Messrs. Jas. O'Brien, H. Little, W. H. White, W. Boxall, F. J. Thorne, J. W. Odell, E. Hill, M. Gleeson, T. W. Bond, W. H. Bilney, J. W. Potter, W. H. Young, F. A. Rehder, A. A. McBean, R. A. G. Thwaites, H. J. Pitt, J. Colman, F. Wellesley, J. Douglas, W. Cobb, H. Ballantine, R. B. White, and de B. Crawshaw.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, staged *Cypripedium* x *J. Howes*, *Dendrobium crassinode*, *Phalænopsis Stuartiana*, *Cattleya labiata alba*, *Cyp. nitens magnificum* G. S. Ball's var., and a fine piece of *Odontoglossum Harryano-crispum*. J. Bradshaw, Esq. (grower, Mr. S. Whitelegg), The Grange, Southgate, had a remarkably fine *Brasso-Lælia* hybrid, *B.-L. x purpurato Digbyana* "Mikado," one of the most excellent that have been shown.

A handsome arching raceme of *Cymbidium grandiflorum* bearing flowers was staged from the Glasnevin Botanic Garden, together with *Dendrobium Williamsi*. M. Ch. Vuylsteke, Loochristy, Belgium, staged choice *Odontoglossums* *O. Vuylstekei recens*, *O. V. concinnum*, and others. Capt. Holford (grower, Mr. Alexander) *Cymbidium Ballianum* with four fine flowers. Mr. R. Briggs-Bury, Bank House, Accrington, staged *Cyp. Beckmani* (parentage not recorded), a big, bold, fine flower of villosum type, coloured green and brown.

Messrs. James Veitch and Sons, Limited, Chelsea, S.W., had a select group, comprising *Lælio-Cattleya Myra*, *L.-C. Pallas*, *L.-C. Callistoglossa*, *L.-C. Myra alba* (pale and beautiful), *Sophro-Cattleya Saxa* (*Sophonitis grandiflora* and *Cattleya Trianae*), *L.-C. Orpheus*, a "smart" flower, with fine, white lip and lemon throat. They also had some hybrid *Dendrobiums*.

Sir Trevor Lawrence, Bart. (grower, W. H. White), Burford, Dorking, had an excellent and choice stand. *Neottia picta*, with two fine spikes, was handsome; there was a *Sophro-Lælia* named *Psyche*, a pretty, graceful little flower; also *Miltonia fuscata*. With these were *Dendrobium signatum aureum*, in a large, deep pan; *Cyp. aureum confetti*, a grand flower; *Mormodes buccinator Rolfei*, with peculiarly constructed flowers; *Sophonitis grandiflora*, very much at home in a large, flat pan; and *Dendrobium Melpomene*, a lovely soft yellow (*D. splendidissimum grandiflorum* x *signatum*). We must also name *Epidendrum porphyreum*, well flowered; *Cyp. hirsuto-Sallieri*, very sweet; *C. Le Douxæ*, and *Odontoglossum coronarium miniatum*. The group was a centre of keen interest.

Mr. James Cypher, Cheltenham, had *Cyp. x Maudiae*, *C. Goweri*, *Lælia harpophylla*, *Dendrobium barbatulum*, and a selection of other things. R. G. Thwaites, Esq., 23, Christchurch Road, S.W., had a large complement of *Dendrobiums*; and from J. Colman, Esq., Gatton Park, came *Vanda Carthartii* (whose lip is on a swivel), *Dend. Aspasia*, *D. nobile album*, and some fine hybrid *Dendrobiums*.

Floral Committee.

Present: W. Marshall, Esq. (in the chair); and Messrs. C. T. Drury, R. C. Nottcutt, R. Dean, J. Green, W. Howe, J. F. McLeod, R. H. Pearson, G. Reuthe, J. Jennings, C. R. Fielder, C. Dixon, C. J. Salter, J. A. Nix, C. Jefferies, J. W. Barr, C. E. Pearson, R. W. Wallace, W. Cuthbertson, W. P. Thomson, E. H. Jenkins, W. J. James, C. E. Shea, and H. J. Cutbush.

Mr. John Hay, St. Margaret's, Twickenham, staged a large table of *Cyclamens*, in five and six-inch pots. The plants were models of cultivation, and covered with flowers in all shades known. The whites were especially good, and the deep crimson *Excelsior* was also noteworthy. The strain is undoubtedly a good one.

The Guildford Hardy Plant Nursery made a small but interesting display of hardy plants, such as *Megasea Ingleresti*, *Saxifraga Burseriana*, *Iris alata*, *Erica carnea*, and its white form; also a few *Hellebores* and other plants.

From Messrs. J. Cheal and Sons, Crawley, came three boxes of rock and alpine plants that were arranged naturally, *Soldanella alpina*, *Shortia galacifolia*, *Primula denticulata*, and its white form, *Blue Primroses*, *Hellebores*, and *Saxifraga Greisbachii* were a few of the flowering subjects, while a collection of conifers made an appropriate background.

Messrs. H. Henderson and Sons, Elmhurst Nursery, Cheshunt, staged twelve vases of a new late flowering *Chrysanthemum*. *Mdlle Louise Charmet*, a beautiful pink, already described in these pages.

Messrs. H. Cannell and Sons, Swanley, made a fine display of *Primulas*, chiefly of the fimbriated section, though the stellate forms were also staged. In the former section the best appeared to be *Moonbeam*, *Unique*, *Marguerite*, *Majestic*, and *Mrs. R. Cannell*, while the most striking of the latter section were *Fairest of the Fair*, *Cardinal*, and *Polar Star*.

A fine bank of hardy plants was that arranged by Messrs. W. Cutbush and Son, Highgate. The shrubs included *Lilacs*, *Clematis indivisa*, *Spiræa Thunbergi*, and *Ericas*. A nice display of *Hellebores*, *Narcissi* in variety, with clusters of *Iris*es, *Prim-*

roses, *Hepaticas*, and *Tulipas* formed an attractive exhibit. The same firm also contributed a well-arranged group of standard and other forced shrubs. The *Wistaria sinensis*, *Magnolia amabilis*, double scarlet *Thorn*, *Lilacs* in variety, *Cytisus præcox*, *alba*, and *Staphylea colchica* were the chief features. The whole was beautifully arranged with foliage plants.

A magnificent display of *Azalea mollis*, both in quantity and quality, came from Messrs. R. and G. Cuthbert, Southgate. They were arranged in mounds, with standard specimens used for dot plants. The whole having a charming effect. The finest varieties were *Alphonse Lavallee*, *Rudyard Kipling*, *Ambrose Verschaffelt*, *President Grevy*, *Dagonet*, *Anthony Koster*, and *Peter Koster*. *Ferns*, *Palms*, *Acers*, and *Bamboos* were freely used, and with good effect.

Messrs. T. S. Ware, Ltd., Feltham, again staged a large collection of hardy and other flowers. A collection of *Hellebores*,



Apple, Adam's Pearmain.

Narcissi in pots, *Primula oboeonia* and the rose form made attractive pots, while pans of *Anemones*, *Cyclamen Coum*, *Primroses* in variety, *Saxifragas*, and *Iris*es were most marked, though there were many interesting plants for lovers of these flowers.

From Mr. G. Reuthe, Keston, Kent, came a small display of hardy plants. *Iris*es were the chief feature, the best being *Iris histrioides major*. A very fine form, *I. Danfordiae*, was also interesting.

Messrs. Sutton and Sons, Reading, staged a group of Italian *Hyacinths*, blue and white, in two blocks. The plants were graceful and full of bloom, and made a pleasing effect.

The only group of *Ferns* in the hall was that staged by Mr. H. B. May, Upper Edmonton, who had a very interesting display, the *Platynerium Willincki*, *P. æthiopicum*, and *P. grande* being especially noteworthy, while good plants of *Pteris Childsi*, *Adiantum Farleyense*, and *Davallia Lawsoniana* were noted.

Messrs. Jas. Veitch and Sons, Ltd., Chelsea, made a fine display of *Primulas*, *Coleus thyrsoides*, the quaint *Loropetalum chinense*, the crimson semi-double *Camellia reticulata*, and a few plants of *Cheiranthus Kewensis*. The *Primulas* were chiefly of the stellate type, and included whites, red, salmon, pink, and blue. The exhibit was most imposing.

A fine group of specimen Palms came from Messrs. Wills and Segar, South Kensington. They were composed of *Carludovica palmata*, *Cocos Bonnetti*, *Kentia Fosteriana*, *Areca sapida*, *Kentia Canterburyana*, *Cocos plumosus*, and *Stevensonia grandiflora*, as well as smaller specimens. The large plants were amongst the finest ever seen in the hall.

Hardy and other plants were displayed by Messrs. Barr and Sons, Covent Garden. A very fine strain of *Primula obconica* was noted. Hellebores were also conspicuous. The pretty little *Narcissus minimus* and *N. cyclamineus* attracted attention, as did also a collection of Crocuses. The quaint plant *Petasites japonica gigantea* was also represented by two fine plants.

Messrs. B. S. Williams and Son, Upper Holloway, sent a nice group of forced shrubs and plants. The Lilaes, especially the standard trees, were beautifully developed. *Prunus triloba* was also in good form. Azaleas, chiefly of the mollis type, were fresh, and the plants well flowered. The whole being nicely displayed.

Medals.

ORCHID COMMITTEE.—Silver-gilt Flora: J. Colman, Esq., and Sir T. Lawrence, Bart.; Silver Flora to R. J. Thwaites and J. Cypher and Sons; Silver Banksian to Hugh Low and Co., J. Bradshaw, and J. Veitch and Sons.

FLORAL COMMITTEE.—Silver-gilt Floras to Mr. H. B. May, Upper Edmonton; and Messrs. R. and G. Cuthbert, Southgate, Middlesex. Silver-gilt Banksian to Messrs. Cuthbert and Son, Highgate. Silver Floras to Messrs. Cannell and Sons, Swanley; Mr. John May, St. Margaret's, Twickenham; Messrs. T. S. Ware, Ltd., Feltham; Messrs. Wills and Segar, Onslow Crescent, South Kensington. Silver Banksians to Messrs. Jas. Veitch and Sons, Chelsea; Mr. John Russell, Richmond; Messrs. Williams and Son, Upper Holloway; and Messrs. Barr and Sons, Covent Garden.

Certificates and Awards of Merit.

Cymbidium Ballianum (Capt. G. L. Holford).—Parentage: *C. eburneum* and *C. Makei*. The segments are ivory white, with yolk-of-egg yellow lip. The raceme had four flowers. A.M.

Cymbidium Wilsoni (J. Veitch and Sons).—Dwarf growing; said by Mr. Rolfe to be a variety of *giganteum*. It was introduced from Yunnan, South China. Sepals and petals greenish with brownish purple overlay. The lip is tea coloured with brown edges. A.M.

Cypripedium Beckmani (R. Briggs-Bury).—A large bold flower, which was admired by everybody. There is much of the *C. villosum* in it, but the parentage was not recorded. The pouch is brownish-red, the petals the same, lined greenish-yellow, while the dorsal sepal is pea-green, spotted with purple. From Bank House, Accrington. F.C.C.

Cyrtomium Butterfieldi (Mr. Percy T. Butterfield).—Seemingly a graceful form of *C. falcatum*, the pinnæ having serrated edges. From The Ferns, Freczywater, Waltham Cross. A.M.

Eupatorium petiolare (H. Cannell and Sons).—The plant shown was graceful, fully 2ft. high, with pale mauve-pink clusters of flowers. The foliage is light green, in shape like that of *Sparmannia africana*, but much smaller on the average. The stems are inclined to be woody, and they branch freely. A most commendable plant. A.M.

Pteris Hilli (J. Hill and Sons).—This has been likened to *P. umbrosa* from Australia, but is harder, larger, darker, more robust, and upright in character. It was imported from Brazil. A.M.

Sophro-Cattleya × *Saxa* (J. Veitch and Sons, Ltd.).—Parentage: *Sophonitis grandiflora* and *Cattleya Trianae*. It is less than half the size of the latter, but is very sweetly coloured, salmon suffused with rose-carmine, going off to a rose-mauve. A.M.

Chester Paxton.

At a well-attended meeting held in the Grosvenor Museum recently, Mr. Robt. Wakefield, Newton Hall Gardens, read a paper entitled, "Herbaceous Flowers for Home and Exhibition." Mr. J. D. Siddall, in introducing the lecturer, said he had chosen a subject upon which he was, by his many successes with herbaceous flowers, well qualified to speak, and this was amply proved by the well thought out and carefully prepared matter submitted by Mr. Wakefield. The cultural methods adopted by him were clearly and concisely given, and the useful hints as to the proper staging of herbaceous flowers for exhibition purposes were also much appreciated. Interesting statements were also given showing the improvement that had taken place in the types of many varieties of herbaceous flowers, and their extended cultivation for decorative as well as for exhibitive purposes.

Mr. Wakefield gave as a typical collection for exhibitive purposes for August and September the following: *Alstroemeria aurea*, *Aconitum Napellus*, *Veratrum nigrum*, *Boeonia cordata*, *Echinops ruthenicus*, *Veronica longifolia subsessilis*, *Helianthus Soleil d'Or*, *Lobelia cardinalis Firefly*, *Erigeron speciosa superbus*, *Chrysanthemum maximum*, *Helenium pumilum magnificum*, *Lilium auratum*, *Montbretia crocosmaeflora*, *Gypsophila paniculata*, *Anemone japonica Honorine Jobert*, *Coreopsis grandiflora*, *Scabiosa caucasica*, *Gaillardia*, *Delphinium*, *Rudbeckia laciniata* fl.-pl. Golden Glow, *Achillea ptarmica* fl.-pl. The Pearl, *Phlox Frau S. Buckner*, *Lilium speciosum album*, *Gladiolus Brenchleyensis*.

An interesting discussion by Mr. Barnes, Mr. Miln, and others followed, in the course of which reference was made to the large number of prizes Mr. Wakefield had won at the Shrewsbury and other horticultural exhibitions with his collections of herbaceous blooms.

Liverpool: "Chemical Manures."

On Saturday evening, the 13th inst., there was a large attendance of gardeners and others at the meeting of the Liverpool Horticultural Association, to hear Mr. Shrivell on chemical and other manures. His remarks were based upon the results of ten years' careful experimental work carried out by Dr. Bernard Dyer and himself. The lecture was very interesting, and, judging by the remarks made at the conclusion, it convinced many gardeners present as to how absurd it is to speak so indifferently—as is sometimes done at these meetings—on the value of scientific research. Mr. Shrivell mentioned the value of nitrogen to Peas and Beans, and contended that the popular fallacy—i.e., that this tribe of plants require no nitrogen—is being exploded, and that Peas and Beans grown with the addition of nitrogen are much sweeter and finer than those grown without it. A series of diagrams were shown proving that the best results were obtained by using a small quantity of dung in addition to chemical



Aster, Diadem. (See page 158.)

manure, this being specially noticeable in the case of Broccoli, Potatoes, &c. The mechanical effect of farmyard manure was dealt with, and with regard to fruit the lecturer said experiments proved that bush fruits, Currants, Raspberries, Gooseberries, &c., were made more productive by using—for 100 square yards, and sowing broadcast—10lb superphosphate, 10lb kainit, during autumn and winter, and in early spring 7lb to 10lb of nitrate of soda. With regard to Strawberries, experiments showed that they could not grow Strawberries entirely by the aid of chemicals, but with a light dressing of dung added to chemicals they would be much more satisfactory to the grower. Mr. Shrivell strongly advised gardeners not to use sewage on any vegetables which had to be eaten in a raw state. Several formulæ were given for Chrysanthemums, Melons, Cucumbers, herbaceous borders, &c. A good discussion was entered upon and several queries asked as regards nitrates, the "symbiotic relations existing in the Leguminosæ" nitrate of potash as a manure, &c. The lecturer was heartily thanked for the valuable information he imparted.—J. S.

Croydon: Forced Vegetables.

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.—The inclement weather of Tuesday evening last debarred a great many from attending the fortnightly meeting of this society, held at the Sunflower Temperance Hotel, when "Forced Vegetables" was the title of a paper read by Mr. W. A. Cooke, Shirley Park Gardens, who had brought with him a good collection of these esculents to illustrate his paper. In opening his

subject, he emphasised the increasing demand there is for forcing vegetables, the knowledge of which is very essential to the gardener who wishes to keep up with the times. The varieties that came under his notice were Asparagus, French Beans, Cauliflowers, Chicory, Dandelion, Cucumbers, Mustard and Cress, Peas, Seakale, Rhubarb, Potatoes, Mushrooms, and Tomatoes.

Royal Meteorological: Natural Phenomena, 1903.

The monthly meeting of this society was held on Wednesday evening, the 17th inst., at the Institution of Civil Engineers, Great George Street, Westminster. Captain D. Wilson-Barker, president, in the chair. Mr. E. Mawley presented his "Report on the Phenological Observations for 1903." He showed that owing to the mildness of the winter and early spring wild plants flowered in advance of their average dates until about May, after which time only backward dates were recorded. In no previous year since the present series of reports were first instituted in 1891, have such spring migrants as the swallow, cuckoo, and nightingale been so late in reaching our shores. The yield of Wheat, Barley, Potatoes, Turnips, and Swedes was somewhat under average, but all the other farm crops yielded well, especially those of hay and beans, which were unusually abundant. On account of the wet and protracted harvest, most of the grain of the cereals was more or less discoloured, while Potatoes were almost everywhere much diseased. Throughout the country this was one of the most disastrous years for fruit ever known; in fact, the only crop which gave anything like an average yield was that of Strawberries.

Mr. W. H. Dines gave an account of the observations which he had made by means of kites at Crinan, off the west coast of Scotland, during last summer. These observations were carried out by Mr. Dines under the auspices of a joint committee of the Royal Meteorological Society and of the British Association, the Government Grant Committee of the Royal Society providing funds for the hire of a vessel for the purpose. The author, after describing various improvements which he had effected in the kites, stated that the weather last summer was most unfavourable for kite flying, as not only was there heavy rainfall, but gales were of frequent occurrence. On one occasion a thunderstorm came on suddenly when the kite was at an altitude of about 4,500ft, but fortunately it was got down without any mishap. The results of the observations show that in August last the mean temperature gradient for the first 5,000ft was 3.2deg per 1,000ft. This is substantially the same as that obtained during the preceding summer, although the conditions of weather were very different.

History of the Potato.

(Concluded from page 115.)

Botanical Character.

The Potato first received the botanical names which it still retains from Caspar Bauhine, and not from Gerard, as previous writers have usually considered. *Solanum*, its generic name, seems most reasonably derived from *solor*, to assuage or comfort; because the Nightshade, which first received the name, was known to the ancient herbalists who conferred it, as a narcotic plant. *Tuberosum*, the specific name, has reference to the form of its roots.

The following are its specific characteristics:—Stems: From 9in to 36in high, somewhat angular, striated, slightly hairy, frequently purple spotted, branched. Leaves: Interruptedly pinnate, having three or four pairs of leaflets, with smaller ones between, and one at the end larger than the rest; leaflets somewhat hairy, green colour darkest on upper surface. Flowers: White, somewhat tinged with purple, and in some varieties cream colour. Fruit: A round berry, size of a small plum; light green at first, becoming darker and almost black as it ripens. Seeds: Numerous, small, flat, roundish.

The Potato belongs to the pentandria monogynia class and order of the Linnæan system, and to the Solanaceæ of the natural arrangement. The baneful Nightshade (*Solanum dulcamara*) is the type of this group of allied plants, and they all, in a varied degree, partake of its evil qualities, though often under a fairer form. The active poisonous principle of the Nightshade is known to chemists as solanin, and they have detected it in some one part or more of the whole group. From every species of the *Solanum*, *Datura*, *Capsicum*, *Hyoscyamus*, *Nicotiana*, *Petunia*, *Brugmansia*, *Atropa*, and *Mandragora* it has been extracted, and the smell of many others betrays their possession of the same subtle poison. It is no just cause for alarm that the Potato is the relative of such deleterious plants; for it is one of the provisions of Providence, the wisdom of which is apparent even to the limited conception of man, that in this world we should have to learn to select the good from its associated evil. The viper's poison and the viper's fat—

the sting and the honey of the bee—the Tapioca and Arrow-root from the most poisonous of plants—are only other examples of the same lesson taught by the facts, that the berries of the *Capsicum* and the Tomato, and the tubers of the Potato, are wholesome, whilst their uncooked leaves are slightly deleterious, and the most acrid of poisons pervades the whole frame of their congeners—the Nightshade, the Stramonium, the Deadly Nightshade, the Henbane, and the Tobacco.

It is generally considered that the tubers of the Potato are a portion of its root; and as they are produced below the soil, it will probably be long before they are otherwise regarded. The appellation, however, is not correctly applied. A root, justly defined, is that portion of a plant which imparts to it nourishment from the earth, whereas the very contrary occurs in the Potato tubers, for these derive the whole of their nourishment from the plant, but yield it nothing in return. M. Decandolle coincides with Dunal and others in the opinion that the tubers of the Potato are in reality developments along the lower branches of the stem buried underground.

The truth of this statement was demonstrated by the experiments of that great vegetable physiologist, the late Mr. Knight, from some of whose experiments the following are extracted. The buds in tuberous-rooted plants beneath the ground were formed, in his opinion, exclusively from matter descended from the leaves of the plant through the bark. He states that, "having raised some plants of the Potato in a situation well adapted to my purpose, I waited till the tubers were about half grown, and I then commenced my experiment by carefully intersecting with a sharp knife the runners which connect the tubers with the parent plant, and immersing each end of the runners thus intersected in a decoction of logwood. At the end of twenty-four hours I examined the state of the experiment, and I found that the decoction had passed along the runners in each direction, but I could not discover that it had entered into any of the vessels of the parent plant. This result I had anticipated, because I concluded that the matter by which the growing tuber is fed must descend from the leaves through the bark; and experience had long before taught me that the bark would not absorb coloured infusions. I now endeavoured to trace the progress of the infusions in the opposite direction, and my success here much exceeded my hopes.

"A section of Potato presents four distinct substances: the internal part, which, from the mode of its formation and subsequent office, I conceive allied to the alburnum of ligneous plants; the bark which surrounds this substance; the true skin of the plant; and the epidermis. Making transverse sections of the tubers which had been the subjects of experiments, I found that the coloured infusion had passed through an elaborate series of vessels between the cortical and alburnous substances, and that many minute ramifications of these vessels approached the external skin at the base of the buds, to which, as to every other part of the growing tuber, I conclude they convey nourishment.

"There is also in the young tuber a transparent line through the centre, which is probably its medulla. The buds and runners sprang from the substance which I conceive to be the alburnum of the root, and neither from the central part of it nor from the surface in contact with the bark."—G. W. J.

Professor Schlich on British Forestry.*

(Concluded from page 136.)

AVERAGE ANNUAL PRODUCTION.

We have as yet in this country very few data which throw light on the possible average production of the various species. The matter is complicated by the fact that certain species grow fast from the very start, while others grow slow at first, but make up for it by growing faster later on. Both in Germany and in France the collection of statistics on the question under consideration has, during the last twenty or thirty years, been most actively prosecuted, so that a great mass of information is now available, although it is not yet complete. We have now tables giving detailed information on the progress of woods of Beech, Scotch Pine, Spruce, and Silver Fir; provisional tables for Oak, Larch, and some other trees. The best available data show that on a locality of average yield capacity in the use of each species, and under proper silvicultural treatment, Larch and Ash give the greatest average production under a rotation of about seventy years; Scots Pine under a rotation of about eighty years; Spruce, ninety years; Beech and Silver Fir, 120 years; and Oak, 130 years. On fertile soil the culmination occurs earlier, and on inferior soils later. If

* An address at the Royal Agricultural College, Cirencester, reprinted from the "North British Agriculturist."

worked under that rotation we can count on an average production in the way of timber as follows:—Ash, about 40 cubic feet per annum, according to quarter girth measurement; Oak, 46 cubic feet; Beech, 57; Scots Pine, 70; Larch, 73; Spruce, 84; and Silver Fir, about 111 cubic feet per annum. Placing the value per cubic foot for Oak and Ash all round at 1s. 5d., Beech 11d., Larch 11d., Scots Pine and Silver Fir 8d., and Spruce 7d., Larch gives the highest annual money production, and Scots Pine and Spruce the lowest. But it must be remembered that the mean annual production culminates at different periods, that of Oak being as much as 130 years, whilst that of Spruce is ninety years.

THE COST OF PLANTING.

Economy in planting is of great importance, because compound interest on the original outlay must be allowed for a long period of time. Generally speaking, the cost of planting is greater in the case of broad-leaved trees, such as Oak, Ash, and Sycamore, and smallest in the case of Conifers, such as Larch, Scots Pine, and Spruce. The exotic Douglas Fir makes an exception, because its seed is as yet expensive. For argument's sake we may place the cost of planting an acre with Spruce at £3 10s.; Scots Pine, £4; Larch, £4 10s.; Beech and Silver Fir, £5; Oak and Ash, £6. Charging compound interest at the rate of $2\frac{1}{2}$ per cent., we find that the cost of planting amounts at the time of cutting over the wood, in the case of Larch at (seventy years), £25; Scots Pine (eighty years), £29; Spruce (ninety years), £32; Ash (seventy years), £34; Silver Fir (120 years), £97; Beech (120 years), £97; Oak (130 years), £149.

VALUE OF SOIL FOR FORESTRY.

I cannot take you through all the intricacies of the calculations, but I may say that, based upon the above considerations, and additional data, which I cannot now place before you, I have calculated the amount which a proprietor may pay for land if he wishes to plant certain trees and get $2\frac{1}{2}$ per cent. on the invested capital. I have, then, to keep on the safe side, deducted 25 per cent. from the amount thus obtained, and I find that he may pay for his land the following sums per acre:—For planting Oak, £9 11s.; Beech, £9 17s.; Scots Pine, £14 5s.; Spruce, £15 1s.; Silver Fir, £16 6s.; Ash, £24; Larch, £34 2s. That is to say, if he obtains the land at a lower rate, he gets more than $2\frac{1}{2}$ per cent. on his investment; if he pays more he gets less than $2\frac{1}{2}$ per cent. You will observe that Larch pays best by far, Ash comes next, while Oak stands last.

EXTERNAL DANGERS.

Here the hardwoods have a decided advantage as regards insects, fungi, fire, gales, &c. Spruce and Scots Pine are especially exposed to insect attacks, also to fungus attacks, but the most serious thing of all is the liability of Larch to be attacked by the canker produced by *Peziza Willkommi*. Indeed, this fungus has now spread to such an extent in these islands that few places will be found where it does not occur. The appearance of this fungus makes the planting of Larch in future highly problematic. Great efforts have been made to get at the bottom of this disease, but the results are, up to date, not satisfactory. The *Peziza* is a wound parasite—that is to say, the tree must have been injured in some way, to break the bark and let some sap flow out, to enable the spores of the fungus to germinate. Different opinions are held as to how the injury has been caused. Causes have been given, as damage by frost, the attacks of the aphid *Chermes laricis*, hail, wind, and what not. Mr. Massie, of the Royal Gardens at Kew, has lately published an article on the subject in the Board of Agriculture's *Journal*. That article states what is known regarding the disease up to date, but it contains one view which I do not consider correct. Mr. Massie maintains that the disease is chiefly due to the damage done by the aphid, inasmuch as the canker generally commences somewhere around a branch, and the aphid mother settles in the angle of the branch with the main stem. This is very ingenious, and I have no doubt that the attacks of the aphid may cause the damage. But, on the other hand, the canker appears where there is not an aphid within miles around. I have just condemned and cleared away a Larch wood seventeen years old, because it was ruined by canker, and I have never seen an aphid within five miles of the wood, although I have watched it

for the last eleven years. My personal opinion is that we have not yet got to the bottom of the matter, but that probably snow, ice, and wind have more to do with it than the aphid. If heavy snow or rime settles on the tender branches they are pressed down, and probably small rents are caused where the branch joins the main stem. Sap flows out, and gives the spores the means of germinating. It is not improbable that strong wind causes the damage. Unfortunately the result is that pure Larch woods must be given up. The only way to proceed is to plant a sprinkling of Larch into other woods. In that case it has a better chance of escaping the disease, and if not, it can be cut out in the thinning without ruining the rest of the wood.

INDIGENOUS TREES VERSUS EXOTICS.

To sum up, in my opinion the best plan in economic forestry in this country is—Plant Ash, Sycamore, and Oak on lands which are thoroughly suited to it, and Conifers, such as Scots Pine, Spruce, Corsican Pine, and perhaps others, on the rest, in either case with a sprinkling of Larch. On wet lands, probably, Poplar pays best. There can be no doubt that it is desirable to make experiments with such exotics as are likely to suit our climate and soil, but we must be careful not to be carried away by enthusiastic recommendations. It stands to reason that the indigenous species have stood the test of climate, soil, and other conditions, and we know what we may expect of them. Planting exotics, except on an experimental scale, is always a risky matter, until actual experience has shown decided results. And that takes, unfortunately, a long time. There is no knowing what diseases exotic trees may develop, and I think the case of the Larch is a case in point. Still, the Larch has done us a good service, at any rate, for a time, and there are other exotic species which may do the same. Amongst the latter the three most promising are the Douglas Fir, the Weymouth Pine, and the Corsican Pine. The last-mentioned produces a straighter stem than the Scots Pine, and suffers less from rabbits. The Weymouth Pine gives heavy crops of timber; it is the species which yields the Canadian White Pine. Above all, however, the Douglas Fir deserves attention. There are two varieties of it, the Atlantic or Vancouver variety, and the Colorado variety. The former is a marvellously fast grower, but it is not quite so hardy as the other. The Vancouver variety is to be recommended for the south and west of England and Ireland; the Colorado, or slower growing variety, for the north of England, and for Scotland. The Taymount plantation, on the Earl of Mansfield's estate near Perth, proves that the Douglas Fir gives a yield that beats the Larch in its palmiest days, and I may also mention a wood of it on the estate of Lord Ducie, which made a most favourable impression upon me. There are, no doubt, other exotic trees which deserve attention, but, as I have said already, we should be careful to avoid planting them on any considerable scale until actual experience has shown that they are superior to our indigenous trees, for, as the old proverb puts it, "A bird in the hand is worth two in the bush."

In conclusion, Dr. Schlich said forestry was an industry based upon science. It could not be studied in the classroom only, but there must be instruction and observation in the forest. The treatment of woods differed with every change of conditions, and it was necessary to observe their development from the time the seed was laid down till they were finally cut over. Above all, continued action and treatment in a given direction were essential. The want of these had been one of the principal causes why the industry of forestry had not been more developed in this country. However, there seemed to be a little forward movement going on now. Lord Onslow's predecessor appointed a committee some eighteen months ago, which had led to the provision in the first instance of instruction for those interested in the forestry industry, such as proprietors, land agents, and woodmen. That would be developed at that College, and he hoped similar measures would be taken by other Agricultural Colleges in the country, and also by our leading universities. Steps had also been taken by the Commissioners of Woods for the instruction of woodmen and foresters on a small scale in the Forest of Dean, where the men received instruction on two days, and worked the other four. He wished the students before him all success in the prosecution of their studies in that new branch of work, and he thanked them for the way they had listened to his remarks.



Hardy Fruit Garden.

STRAWBERRIES.—A mulching of rich manure may with benefit be given old plantations. Fork between the plants, burying all weeds as far as possible, without undue disturbance of the roots of the Strawberries. If new beds are to be made the plants should be got out at once whenever the land is in proper condition for working upon; see that the young plants are not buried too deeply in the soil. Beds planted last August will, during the mild winter, have become weedy, and should be carefully pointed over when dry on the surface.

FILBERTS AND COBNUITS.—As soon as the female blossoms of these are sufficiently developed to observe which are the best branches to retain, these may be pruned. Aim at an open basin-shaped bush, and an endeavour should be made to suppress suckers, which quickly choke the centres of the trees. Branches bearing bushy growths are more likely to bear a number of nuts than the straight, upright shoots, and these should be allowed to remain with a sufficient number of catkins to ensure fertilisation of the flowers. If catkins are scarce, small bunnies obtained from hedgerows of the common nut should be placed in the trees for a few days; these will answer the purpose admirably.

CANKER IN APPLES.—Where old trees have become badly crippled owing to this disease it is sometimes more profitable to remove them entirely. Provided the land is properly prepared, and strong young bushes or standards are planted to replace the old trees, there will be no greatly extended waiting for fruit. Badly infested heads of moderate age may sometimes with advantage be cut back almost to the main stem. Fresh growth is quickly produced, and in three or four years' time, if generously treated, such a tree may be but a slight remove from its best bearing capacity, and for some years the new branches thus produced may remain tolerably clean. Trees that have only one or two bad wounds here and there may be differently treated. The old, scaly bark should be removed down to that which is healthy, and the cuts thus made should be dressed with Stockholm tar. Efforts should be made to prevent the fungus that causes the disease from obtaining a hold of the trees. If branches get broken the fractures ought to be cut clean away, and all cuts in pruning should be made as clean as possible, to avoid giving the pest any lodgment. Where trees are enfeebled they must be fed with either solid or liquid manure; the latter is the best to apply to large old trees whose roots may reasonably be expected to be some distance from the surface.

PRUNING NEWLY PLANTED TREES.—Young bushes and pyramids that were planted in autumn may now receive attention. Shorten strong growths about one-third, weaker shoots accordingly; any which threaten to fill the middle of bushes should be removed to within two or three buds of their bases. By moderate pruning a sufficient number of branches will be obtained for forming well-balanced trees, though such butchery as is sometimes practised on young trees is certainly not here advocated. Gooseberries that have not been pruned owing to bird attacks should now have attention, as the bushes are breaking into growth.

PLANTING.—Though advocating autumn planting in preference to the spring, there are causes which may compel planting now. Whenever the land is dry on the surface the work may be proceeded with. Plant firmly in deeply prepared soil; the young trees will be benefited by a mulching of manure after being placed in position.—J. W., Newent, Glos.

The Flower Garden.

LAWNS.—The spring renovation of lawns, croquet and tennis courts, bowling greens should commence by giving them a thorough sweeping with a stiff birch broom. This will be especially necessary where manure, soil, and wood ashes have been spread over the grass as fertilisers. Scratch the surface over with iron rakes for the removal of stones and other rough material prior to the sweeping, which is best performed when the surface has become somewhat dried by the winds. The rake will also loosen moss, if present. Frequent rolling should be practised so as to consolidate the surface and bring it into condition for the active growth of the grass.

FERTILISING LAWNS.—Any fertiliser given now to lawns must be in the form of very fine material. Where the grass is liable to be very poor in growth, nitrate of soda and superphosphate may be given now at the rate of 1oz of nitrate of soda to 2oz of superphosphate to each square yard. One ounce of

guano to the square yard is excellent in moist weather, while Clay's, Standen's, and other proprietary manures may be given 2oz to the square yard in showery weather. Soot is a nitrogenous manure of great fertilising power, and may be used at the present time with beneficial results on the growth.

PLANTING WALL CLIMBERS.—The ground having been prepared some time, and become pulverised, the soil under walls being comparatively dry, creepers and climbing plants may be planted to suit the various positions which they will best fill. For south, south-west, and west aspects *Ampelopsis Veitchi*, *Jasmines*, *Roses*, *Clematis*, *Passifloras*, *Crataegus pyracantha*, *Wistarias*, and *Loniceras* are suitable, while for the more bleak and northerly positions nothing surpasses Ivy, of which there is a great variety. On sunless walls the green varieties succeed best, but they do well on any aspect. The silver and golden leaved varieties may be accorded the sunny positions. As some of them are slow growing they are admirably adapted for low walls.

ESTABLISHED CLIMBING PLANTS.—The pruning, tying, regulating, and training of these should be completed ere growth begins. Spur-prune the laterals of summer flowering *Loniceras*. Thin cut *Jasminum officinalis*, and now that the flowering of *Jasminum nudiflorum* is nearly over cut back the flowering shoots. *Passifloras* grown on outdoor walls may have the growths thinned out, allowing free extension to those that remain, only removing the unripe parts. *Roses* on walls should receive a general thinning, old and exhausted wood being removed. *Banksian* *Roses* should not have the twiggy shoots too closely removed, as flowers are produced freely on these.—E. D. S., Gravesend.

Fruit Forcing.

CUCUMBERS.—The plants raised from seed sown at the new year, and transferred to the ridges or hillocks in the Cucumber house, need not be stopped until they have extended two-thirds up the trellis. Train the laterals about 1ft distance apart, and do not stop them until they have extended about two-thirds across their allotted space sideways. A vigorous growth is thus secured, and the plants will crop much better and longer than those which are pinched near the bottom of the trellis with a view to early fruit. If the latter practice is followed care must be taken not to overcrop the plants, or the growth will be stunted, and not enough made for a successional and regular supply of fruit.

WINTER FRUITERS.—As the light and sun heat tell advantageously a greater supply of atmospheric moisture is needed, keeping the evaporation troughs charged with liquid manure, or sprinkle the paths occasionally with it at closing time, damping with water in the morning and afternoon. Supply top-dressings of fresh lumpy loam at fortnightly intervals, or not more distantly than three weeks, of bone superphosphate and soot in equal parts by measure. Thin the fruits well, remove superfluous growths, bad leaves, tendrils, and male blossoms, stopping the shoots one joint beyond the fruit, avoiding overcrowding. Maintain a night temperature of 65deg, 70deg to 75deg by day, advancing to 80deg, 85deg or 90deg from sun, and closing early so as to run up early in the afternoon to 95deg or 100deg.

VINES: EARLY FORCED IN POTS.—The Vines started early in November, and being strong, well-ripened canes, have, under proper management, the Grapes in an advanced state, and soon will be taking the last swelling. This occurs with the colouring, when they swell more than at any other stage, therefore supply fresh top-dressings of turfy loam or lumpy, well-decayed manure, with a sprinkling every ten days of superphosphate, three parts, and one part powdered saltpetre mixed. This not only feeds but encourages root action, and the roots absorb liquid manure, which should be supplied warm and not too strong. Maintain a genial condition of the atmosphere by damping the paths and walls two or three times a day, especially at closing time, which should be sufficiently early to run up the temperature to 85deg or 90deg.

STOPPING, TYING, AND REGULATING SHOOTS.—The growths in houses started a few weeks ago will be sufficiently forward for disbudding, but not attempting it before the best breaks can be discerned. The operation should be performed gradually, removing the weakest and worst placed first, and ultimately leaving no more growths than there is space for the full exposure of the foliage to light, always retaining the most promising for fruit. Stopping should take place at one joint beyond the bunch where the space is limited, but two joints ought to be left where there is room for lateral extension. Tie the growths as they advance and before they touch the glass, bringing them down carefully, as they are liable to break. Allow sufficient room in the ligature for the swelling of the shoots, and loosen all that are too tight.

VINES IN FLOWER.—Cease syringing, yet avoid a very arid atmosphere, and prevent condensation of moisture by a little ventilation constantly without causing a draught. Temperature 60deg to 65deg at night, 70deg to 75deg by day, advancing to

80deg to 90deg from sun heat. Carefully fertilise any shy-setting varieties, brushing the bunches lightly with a camel's-hair brush, and then follow with it charged with pollen collected from free-setting sorts, such as Black Hamburg and Alicante. Fertilisation is imperative in the case of Muscats, attending to it on a fine day after the house has been ventilated a short time, and always when the "caps" part easily from the tips of the flowers, as then the stigmas are ready to receive the pollen.

THINNING GRAPES.—Never allow this work to get into arrears, but thin free setting varieties as soon as they are fairly out of flower, taking out the smallest berries first, and then going over the bunches again, so as to leave only sufficient berries to form a compact bunch, each berry being allowed space to swell to its full size without wedging or losing its natural form. This requires the exercise of a little judgment, and can only be acquired by experience. Muscats and all shy-setting varieties should not be thinned until the properly fertilised berries can be distinguished, as they take the lead in swelling, whilst the unfertilised ovules remain almost stationary.

FEEDING.—After setting and thinning the Grapes swell fast, and should be accelerated by judicious applications of liquid manure, encouraging surface roots by light mulchings of lumpy manure, such as sweetened horse droppings, and sprinkling on each square yard a small handful of a mixture of three parts superphosphate, one part powdered saltpetre, half a part sulphate of magnesia, and quarter part sulphate of iron, mixed. Attend to watering as required, not having stated times, but always make an examination of the border, and supply tepid water whenever necessary, but then only, and always sufficient to moisten the soil down to the drainage. Overwatering is even worse than too little, as it makes the soil sodden and sour, and shanking follows. Maintain a genial condition of the atmosphere by damping the floor and border in the morning, at closing time, and in the evening. Make most of sun heat by early closing, running up to 85deg or 90deg, and this will maintain a good temperature into the night, when it should gradually fall to the minimum temperature of 60deg to 65deg. Admit air in the morning before the sun has raised the temperature more than 5deg to 10deg. This should be done without lowering the temperature, and the Vines will be saved from scorching.—G. A., St. Albans, Herts.

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

Calceolaria Culture.

The Calceolaria is a plant which requires particular attention, and perhaps these few remarks will be of use. Calceolaria seed is very fine, and great care will be necessary whilst sowing. This should take place about the second week in July. Assuming that the pans are carefully crocked, they should be filled with a nice light compost, consisting of fibrous loam and leaf soil in equal proportions with a good sprinkling of silver sand. Press the soil firmly, and water with a fine-rosed can before sowing. Allow this to drain, then sow the seed thinly, with the lightest possible covering of sand: remove to a cold frame, and cover with a pane of glass. Now shade closely till the seedlings appear, when one can gradually expose them to the light, but at no time should they be subjected to the sun's rays. Pot into "thumbs" so soon as they are large enough to handle, allowing a little more loam in the compost. Again remove to frame, and shade carefully. Pot on as they fill the pots with roots, never allowing them to become pot-bound, or pale, sickly leaves will be the result.

Admit air freely on every favourable occasion, but avoid cold draughts. For final potting I advise lumpy fibrous loam two parts, flaky leaf soil one part, with some sharp grit and mortar rubble added. One of the chief features in the culture of this plant is the careful use of the water-pot. Overwatering is just as bad as not giving enough, but always strive for the happy medium. They should remain in a cold frame until the autumn frosts appear, when they should be removed to a nice airy pit, on shelves near the roof glass. The temperature need not exceed 40deg to 45deg Fahr. at night, with a rise to 50deg to 55deg Fahr. in the daytime. Keep a sharp look-out for green fly, and fumigate at their first appearance. Plants grown here under the above conditions are a fine, healthy lot, and will soon be a pleasing spectacle.—GEO. F. SLEIGHT, Hampworth Lodge Gardens, Salisbury.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

PACKING FRUIT (E. F.).—American Apples are sent to this country in barrels, the fruit being firmly pressed down without any packing. Each barrel holds about three bushels. Much fruit is sent from Kent to London in round, very strongly made, bushel baskets. French Plums are sent in deal boxes, differing in size, many being about 2ft long, 18in wide, and 9in deep; but choicer fruits are sent in much smaller boxes containing two or three layers of fruit, packed in soft paper shavings, the boxes also being lined with paper, the ornamental or "laced" margin of which is brought very neatly over the fruit, giving the boxes a very attractive appearance. Some of the smaller of these, a foot in length or less, are extremely tasteful, and not a few purchasers consider them worth more than the fruits they contain.

NARCISSUS HORSEFIELDI AND SIMILAR VARIETIES, TRANSFERRING FROM ALLUVIAL TO VERY SANDY SOIL (D.).—Although Narcissi succeed fairly well in light, sandy soil, they like something more substantial as a base or subsoil, and can only be kept in satisfactory condition by liberal dressings of manure. On such soil we found nothing better than cow manure, a good dressing (forty tons per acre, quarter of a ton per rod) being given and worked into the soil to a depth of a foot before planting. This supplies humus and nutrient matter, and suffices for a number of years, or until they require taking up for division, assorting, and replanting. We, however, also gave a top-dressing each autumn of thoroughly decayed manure, and the Narcissus thrived much better than on heavier and richer soil.

YOUNG CUCUMBER LEAVES AND TENDRILS TURNING YELLOW (W.).—The symptoms you describe are not those of "yellows," but of eelworm or defective root action, but which we cannot say in the absence of specimens. We have known the appearance you describe follow a check, such as a sudden change from dull and cold to bright weather; also a supply of cold water, or an excessive supply of this making the soil sodden, with a consequent loss of roots, causing the foliage to die back and the growths to become stunted. The sulphate of iron is useful against eelworm, which we fear the symptoms indicate, and you should use kainit at alternate waterings, not employing more than ½oz in a gallon of water, and apply a gallon of such solution per square yard with a fine-rose watering can. The turfy loam ought to have been disinfected before use, as there is great danger in using fresh-cut loam, and the mixing with fresh horse droppings would aggravate the evil, while the burnt ashes from a smother heap and the old mortar rubble would to some extent counteract it. Possibly by the use of the kainit and sulphate of iron you may overcome the eelworm before it has taken possession of the plants and commenced breeding, when there is no cure.

PREVENTING MILDEW ON VINES (N.).—The Vines, if they have not started into growth, may be washed with a 10 per cent. solution of sulphate of iron (green vitriol or copperas), applying it to the rods with a brush. The walls should be whitewashed, using the copperas solution, 1lb to a gallon of water, for mixing with the lime, or a good handful of flowers of sulphur may be mixed with each pailful of lime-wash. The sulphur will give off some fumes under the action of the sun, which are inimical to mildew. The border may also be sprinkled with the sulphate of iron solution, a three-gallon wateringcanful being sufficient for 90½ square yards. House sewage would not produce mildew, but in excessive quantity, and applied cold, might favour its development. The blue mould on the cuts indicates a damp atmosphere, and possibly this is the only mildew that has infested the Vines. Indeed, we have a strong suspicion that this so-called saprophyte is a parasitic fungus on Vines, as we came across some last year producing growths or conidia bearing hyphae from living tissue. It would be advisable to keep the Vines rather dry as regards syringing, and use the sulphur on the hot-water pipes very carefully, as it may produce rust in the berries, which is quite as bad as mildew for spoiling Grapes.

AMERICAN DIRECTORY OF SEED MERCHANTS (Conrad Appel.)—The American Florist Company, 324, Dearborn Street, Chicago, Ill., U.S.A., publish a directory, price \$2.

RUST ON BEGONIAS AND OTHER PLANTS (Rust).—The rust is certainly caused by a mite (*Tarsonymus* sp.) We have found the best results attend frequent spraying with tobacco water, and also great benefit from vaporisation with nicotine, the vaporisation being repeated two or three times at intervals of about four days, and afterwards at fortnightly or three weeks. The spraying, however, has proved most effectual.

"BARBAROSSA" GRAPES NOT SWELLING AND COLOURING SATISFACTORILY (Cymro).—The bunch you forwarded is not the variety named, which is, perhaps, not grown in this country, the berries slightly oval, or round, with a thin skin of a grizzly colour, or pale red, and a delicate flesh of a very rich flavour. Your specimen is a well-set, medium-sized cluster of Gros Guillaume, commonly called, but erroneously, Barbarossa. We shall answer more fully next week.

EXAMINATIONS IN HORTICULTURE (Apprentice).—As we have more than once stated, all requisite information can be obtained from the Secretary, Royal Horticultural Society, 117, Victoria Street, Westminster, S.W. The questions are not disclosed till the students assemble in an appointed room, and they must answer them within the time then specified without reference to any books or leaving the room.

CURE FOR THE BLEEDING OF VINES (G. O. S.).—The bleeding may be cured by wiping the cuts or wounds, and dressing them at once with best French polish. Apply the French polish on the wet wounds by means of a brush. The dressing should be repeated in the morning and evening until the bleeding ceases. Patent knotting and Thomson's styptic are also excellent for preventing and even stopping Vines bleeding. The substances should only be applied to the wood, not using the material on the bark, and it is advisable to lower the temperature as much as safe, as this causes the sap to recede.

HEATING HOUSE (T.).—A flow and return on each side of the house would give sufficient heat for Tomato culture from March to November, inclusive, but there is always an advantage in having ample piping; therefore the additional flow and return would be advisable, and a necessity for winter work. The pipes should be 4in, the boiler being at the lower end of the structure, and the flow and return pipes on each side placed one over the other. The other two pipes may be on the same level, or nearly so, following the incline of the ground, having an air tap at the highest point, or on the upper part of the cross piece, similar means being employed on the side pipes, but these should be air pipes and always open.

POTATOES ON VERY SANDY SOIL (Radcliffe).—Potatoes can be grown well on soils that produce fair crops of Carrots, Peas, and Clover. The early varieties, such as Ash-leaf, do well, and coming in early bring good returns, while Magnum Bonum yields heavily for late use, the tubers being of good quality and even size. Bone and blood manure are excellent for such soils, also native guano, as they supply a certain amount of humus. About 5cwt should be used per acre. As the land may contain a fair amount of humus from crop residues, the following may be all that is required:—Kainit, 1½cwt; nitrate of soda, 1cwt; bone superphosphate, 2½cwt; iron sulphate, ½cwt, mixed, per acre, applying at the time of setting. The nitrate of soda should be crushed fine, so as to secure thorough mixture and even distribution.

NAMES OF PLANTS.—*Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number.* (G. E. W.).—*Epidendrum vitellinum*, good form. (R. D. J.).—1, *Senecio Ghiesbreghtii*; 2, *Cardamine hirsuta*; 3, *Helleborus olympicus*; 4, *Daphne Mezereum*. (F. G.).—*Rhododendron fragrantissimum*. (R. B.).—1, *Odontoglossum luteo-purpureum*; 2, *Dendrobium nobile nobiliss*; 3, *Cattleya Percivaliana*. (H. R. M.).—*Doodia caudata*; 2, *Adiantum capillus-Veneris*; 3, *Polypodium pedatum*. (Sunbeam).—A, *Acacia pulchella*; B, *A. Drummondii*.

Covent Garden Market.—February 24th.

Average Wholesale Prices.—Ferns, Foliage, Moss.

	s. d.	s. d.		s. d.	s. d.
Asparagus, long, bnch.	2 0	to 2 6	Ivy leaves, doz. bun. ...	1 6	to 0 0
„ medium, bunch ...	1 3	1 6	Myrtle, large French,		
„ short, per doz. bun.	6 0	7 0	per doz. bun.	1 0	0 0
„ Sprenger, dz. bun.	9 0	18 0	„ small English, per		
Smilax, long, doz. trails	1 0	1 6	doz. bun.	6 0	0 0
Maidenhair, best, per			Moss, natural green, per		
doz. bnchs.	0 0	6 0	gross bun.	6 0	0 0
Berberis, per doz. bun.	0 0	0 0	„ Lichen, full size		
Croton foliage, various,			boxes, per box ...	1 0	0 0
per doz. bun.	9 0	12 0			

Average Wholesale Prices.—Fruit.

	s. d.	s. d.		s. d.	s. d.
American Limes, 40C-			Grapes, in barrel...	12 0	to 18 0
500 in case	7 0	to 9 0	„ Muscats, A., lb.	6 0	8 0
Apples, home cookers,			„ „ B., lb.	2 0	3 0
bush.	3 0	5 0	„ Canon Hall, A., lb.	2 0	8 0
„ American, brl. ...	8 0	14 6	„ Gros Colman, A., lb.	1 6	3 6
„ Californian, case	7 6	14 0	Lemons, per case...	8 6	10 0
Bananas, bunch	7 0	12 0	Lychees, box...	1 2	0 0
Chestnuts, bag	19 0	0 0	Oranges, per case...	5 0	35 0
Cobnuts, per lb.	0 7½	0 0	Pears, per case	14 6	0 0
Cranberries, per case ...	10 6	13 8	„ stewing, ½-sieve	9 0	11 0
Figs, per box	0 10	1 0	Pines, each	2 0	5 0
Grapes, Alicante, lb. ...	1 0	2 6	Strawberries, lb.	10 0	15 0

Average Wholesale Prices.—Vegetables.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes, Jerusalem,					Onions, per ease ...	6	0	to 6	6
sieve... ..	1	0	to 1	3	„ per bag ...	4	0		6
Asparagus, Sprue, bundle	0	10	0	0	„ picklers, sieve	3	0		5
„ Paris Green...	4	6	6	0	„ English, cwt.	7	6		0
„ English, bun. ...	6	0	7	0	Parsley, doz. bnchs. ...	1	6		2
Beans, dwarf, per lb....	2	6	3	0	„ sieve... ..	0	6		0
„ Madeira, basket...	1	6	2	0	Parsnips, per bag ...	2	0		2
Beetroots, per bushel...	2	6	3	6	Potatoes, per ton...	80	0	130	0
Brussels Sprouts, sieve	1	6	2	9	„ New Teneriffe,				
Cabbages, tally ...	2	0	5	0	per cwt. ...	12	0	14	0
Carrots, doz. bun. ...	2	0	3	6	Radishes, doz. bun. ...	0	9	1	0
„ per bag ...	2	6	4	0	Rhubarb, per doz. ...	0	9	1	0
Cauliflowers, doz. ...	1	6	2	6	Salad, small, pun., doz.	0	6	1	0
Celery, per doz. bun. ...	10	0	20	0	Savoy, tally ...	3	0	4	0
Cress, per doz. pun. ...	0	9	1	0	Seakale, per doz....	10	0	14	0
Cucumbers, doz. ...	7	0	10	0	Shallots, per lb. ...	0	1	½	0
Endive, per doz. ...	1	6	0	0	Spinach, per bush. ...	3	0	3	6
Garlic, per lb. ...	0	2	0	3	Tomatoes, English, doz. lb.	4	0	7	0
Horseradish, foreign,					„ Canary Deeps, lb.	3	0	4	0
per bun. ...	1	3	1	6	Turnips, doz. bun. ...	1	6	2	0
Leeks, per doz. bun. ...	1	0	1	6	„ per bag ...	2	0	2	6
Lettuces, Cabbage, doz.	1	0	1	3	Watercress, per dozen				
Mushrooms, house, lb.	1	0	1	6	bunches ...	0	4	0	8

Average Wholesale Prices.—Plants in Pots

Most of the undermentioned plants are sold in 48 and 32-sized pots

	s. d.	s. d.		s. d.	s. d.
Acacia Drummondii, dz	15	0 to 18	0	Euonymus, vars., doz.	4 0 to 6 0
Adiantums, per doz. ...	4 0	8 0		Ferns in var., per doz.	4 0 30 0
Aralias, per doz.	4 0	8 0		Ficus elastica, doz. ...	9 0 24 0
Arbor Vitæ, per doz. ...	9 0	18 0		Genistas, doz.	6 0 10 0
Aspidistras, per doz. ...	18 0	36 0		Hyacinths, Roman (48-	
Aucubas, per doz.	4 0	8 0		pots), doz.	8 0 9 0
Azaleas, each... ..	1 6	3 6		Lycopodiums, per doz.	3 0 4 0
Begonia, per doz.... ..	8 0	18 0		Lily of the Valley, doz.	9 0 24 0
„ Gloire de Lor-				Marguerites, white „	4 0 8 0
rairie, per doz.	8 0	24 0		Orange Trees, each ...	2 6 10 6
Callas, per doz.	10 0	12 0		Palms, var., each ...	3 0 20 0
Chrysanthemum, doz. ...	6 0	12 0		Poinsettias, per doz....	8 0 15 0
Cinerarias, doz.	8 0	12 0		Primulas, per doz. ...	4 0 6 0
Coleuses, per doz.	4 0	5 0		Pteris tremula, per doz.	4 0 8 0
Crotons, per doz.	12 0	24 0		„ Wimsetti „	4 0 8 0
Cyclamens, per doz. ...	9 0	18 0		„ major „	4 0 6 0
Cyperus, per doz.... ..	3 0	4 0		Solanums „	4 0 6 0
Daffodils, per doz.	6 0	8 0		Spiræas, doz.	6 0 9 0
Dracænas, var., doz. ...	12 0	48 0		Tulips, red, doz. roots .	1 0 0 0
Ericas, per doz.	6 0	12 0		„ yellow, doz. roots.	1 6 0 0

Average Wholesale Prices.—Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Anemones, doz. bun. ...	1 6	to 2 6	Mimosa (Acacia), per		
Azaleas, per bun....	1 0	2 0	bun.	0 9	to 1 0
Bouvardias, per bun. ...	0 4	0 6	Narcissus, doz. bun. ...	1 0	2 0
Callas, per dozen. ...	3 0	5 0	„ Soleil d'Or, per doz.	3 0	4 0
Camellias, box ...	1 6	2 6	„ Pheasant's Eye ..	2 0	4 0
Carnations, per doz. ...	1 6	4 0	Orchids, various, doz.	3 0	12 0
Chrysanthemums—			„ Odontoglossums,,	2 6	3 0
doz. bunches	6 0	24 0	„ Cypripedium in-		
Daffodils, bunch ...	2 6	8 0	signe, per doz.	1 6	3 6
Eucharis, per. doz. ...	3 0	4 0	Pelargoniums, zonal,		
Ferns—Asparagus, bun.	1 0	2 6	doz. bun....	6 0	8 0
French, doz. bunches	0 4	0 6	Poinsettias, bun....	1 6	0 0
Maidenhair, doz. bun.	4 0	6 0	Roman Hyacinths, per		
Freesia, per doz. ...	1 6	2 0	bunch	0 6	1 0
Gardenias, box of 18-24			Roses, Mermet, per doz.	3 0	6 0
blossoms	4 0	5 0	„ Various, per bun.	0 6	1 6
Lilac (French), bun. ...	1 6	3 0	„ White ..	1 6	2 0
Lilium longiflorum,			„ Pink ..	1 0	2 0
doz. blossoms	4 0	7 0	Smilax, per doz. trails	1 0	1 6
„ lancifolium ..	1 6	3 0	Snowdrops, doz. ...	1 0	1 6
„ auratum ..	2 6	4 0	Stephanotis, per doz....	1 6	3 0
Lily of the Valley, per			Tuberoses, strong, bun.	1 0	1 6
doz. bun.	6 0	15 0	„ doz.	0 6	0 9
Marguerites, yellow,			Tulips, doz. bunches	6 0	12 0
per doz. bun. ...	1 0	2 0	Violets, per doz. bun ..	1 6	1 9
Mignonette, per doz. ...	3 0	4 0	„ Parma ..	1 6	2 6



Purchasing Manures.

The voices of the manure merchant and his agents are being heard in the land, and those farmers who are both able and anxious to buy to the best advantage are giving their orders for the season.

Prices at the opening have been moderate, but the rise in value in cereals and feeding stuffs may have an influence also on manure, and there should be no advantage in delaying purchases. We referred to prices as moderate, but the values of nitrate of soda and sulphate of ammonia are both 20 per cent. above those of four or five years ago. This is, no doubt, quite as much due to the greater knowledge of their usefulness possessed by modern farmers, and the removal of prejudice, as it is to better organisation amongst producers.

When nitrate of soda was selling at £7 15s., and sulphate of ammonia at £9 10s. they were worth as much to the farmer per ton as they are now when prices are much higher; and the question suggests itself: "with the present range of prices for agricultural produce where is the limit of price at which farmers should stay buying these concentrated fertilizers and turn their attention to other forms of manure?" Nitrates are often sown separately, but also in mixture with other artificials, and they are seldom used nowadays absolutely alone, even for grain crops; phosphates being sown in addition either separately or in mixture with the nitrates. Phosphates show no alteration in prices, having kept at the same level for several years, but there are other manures which combine both nitrates, phosphates, and potash, and these manures, regulated by supply and demand, fluctuate considerably, and it is amongst them we must look for an alternative and cheaper form of nitrogen than we can obtain in the concentrated forms above referred to.

We notice a quotation of such a manure in the report of Liverpool Market, viz., Peruvian guano containing 4 per cent. ammonia, 51 per cent. phosphates, and 7 per cent. sulphate of potash at about £5 5s. per ton on rails, which would mean £5 10s. to £6 delivered. Valuing the ammonia at 42s., the phosphates at 76s. 6d., and the potash at 14s., we find a total of £6 12s. 6d. or 12s. 6d. to 22s. 6d. per ton more than the cost. The question will be asked: "What is a manure so rich in phosphates suitable for?" In its purchased form it is an ideal manure for either Swedes or Mangolds, especially the latter; 5cwt for Swedes, and 7cwt for Mangolds would be sufficient without the aid of dung to grow a fair crop, and if farmers are to sell their wheat straw, and buy artificials as we recently saw advocated in a farmers' paper, here is a likely manure to answer the purpose.

But we are not deprecating the use of dung, far from it. We have reason for thinking that the long continued disuse of dung results in reduced fertility of the soil, not necessarily from the absence of the necessary forms of plant foods, but from lack of a sufficient quantity of humus to produce a sturdy and well balanced plant. Heavy soils will retain their fertility much longer than sandy ones under similar conditions. The only substitute for muck on light soil is the frequent ploughing in of green crops and the frequent growth of leguminous crops such as Clover and tares. Bonemeal, which is slightly cheaper than the guano mentioned, contains less ammonia, rather more phosphates, but no potash, and is dearer when valued according to its constituents. It is good for roots, and has a most beneficial effect on Clover. A mixture of bonemeal and superphosphate is excellent for common Turnips, and as its effect will also be seen on both the following corn crop and the suc-

ceeding Clover, there should be no doubt about its cost being well recouped.

Superphosphate alone will grow good Turnips, but its use may easily be overdone. Fine dry condition should always be insisted on. We believe much harm may be caused by the use of superphosphate in a wet and somewhat acid condition immediately after it has been manufactured. Some firms have a drying apparatus to prevent this, and they deserve encouragement. Super guaranteed 26 per cent. soluble phosphate is worth 45s. in large, and 47s. 6d. in small quantities at the works. Kainit is now worth about 47s. 6d. at the ports. After the Baltic is open in April it will come several shillings cheaper, but kainit applied late is of little use for this season's crops. One manure, ammoniated phosphate by name, is usually very dear for the constituents it contains, the fact being that the manufacturer charges about 20s. per ton for mixing two simple substances, viz., nitrate of soda and superphosphate. The farmer will find it cheaper to do the mixing himself.

There are several qualities of basic slag, and the price varies from 30s., or a little over, to 45s. at the depôts. As a rule it is best to buy from the nearest depôt to save railway carriage, which is a serious item in the purchase of low priced manures.

We have used basic slag for several purposes, and have found it most useful for poor or coarse grass and for arable land of a peaty or fenny nature, where the benefits were very marked. An old-fashioned but neglected manure is soot. As a top-dressing for corn, Cabbage, or Potatoes it is very useful if it can be bought and distributed for 50s. per ton or less. Corn crops which have been dressed with soot fill the ears better and produce bolder grain than with any other form of top-dressing, but they take more time to ripen.

In mentioning the above prices we refer to cash or very early payments. You cannot have cheap manure as well as long credit. In too many cases farmers do not pay for the manure of one season until they have realised the crops of the succeeding one, and they have to pay very dearly for this credit, besides being helpless in buying, as they must go to the old firm.

Work on the Home Farm.

Work on the land has been quite out of the question for the whole of the past week. Water is visible on every hand, and as wet snow is falling as we write there is little prospect of immediate improvement.

We have cleared all the manure from the yards, and until more is made there is no more work to be found there. We have a big heap of compost which we intended putting on grass if there should be a sharp frost. We may lead it on now if the grass will carry the loaded carts, but it would be folly to cut the turf up for the sake of putting the top-dressing on.

By permission of the highway authorities we are going to plough off a strip of sward by the side of a wide highway, and cart the turfy loam ploughed up into a field, and use it later on for the formation of another compost heap. This roadside loam contains a large percentage of lime, and is not only useful for mixture in compost, but as a direct top-dressing for rough grass. In some districts much good would be done to the roads if farmers would plough up and cart away some of the ridges of turf which hinder the proper drainage of surface water.

The stoppage of all land work has turned every holder of Potatoes into a seller, and delivery is proceeding at such a rate that visible supplies must soon be exhausted. Every woman available is being hunted up to do the sorting, and are being conveyed miles to their work. Notwithstanding the heavy supplies the trade is stiffening again.

The same may be said about the corn trade. The outbreak of war created no boom in wheat, but prices have been quietly advancing, and other articles have advanced in sympathy with it. As we remarked a week or two ago, when wheat touches 36s. we shall sell out. We think oats are worth keeping; they are scarce, and there must be a great demand for seed.

We are just commencing lambing, and hope for drier weather, even if it be colder. Our neighbours who have a number of early lambs report losses from swollen joints. This is caused by damp, cold, and lying on wet ground. Open shelters are useful for protection in such cases; if they are bedded with dry straw the lambs will generally be found in them. Farmers never have too many hurdles. If you look round a farm just now you will scarcely find a spare one, and shepherds often complain of not having sufficient. Well thatched they make splendid roofs either for pens or shelters, and fairly good ones can be bought for 1s. 6d. each.

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Journal of Horticulture.

THURSDAY, MARCH 3, 1904.

Shows and Showing.

WITH the yearly increase of horticultural societies and exhibitions there is likely to be an upward movement in the tone of the exhibitions held by them. Shows and showing have been the means of developing a knowledge of, and love for, plants, and fruits, and flowers such as none of us can correctly estimate; and we have very prominent evidence of the truth of the statement in the present success of the Royal Horticultural Society. The fortnightly exhibitions have been the great mainstay of that body, as they have of some kindred societies; but on the other hand the shows have been disastrous to the exchequer of other societies, notably the Royal Horticultural of Ireland. Imitation of the methods employed by flourishing bodies does not always succeed. Possibly if all the features of the unsuccessful cases were impartially investigated, good and satisfactory reasons for their unprosperous condition could be adduced. They may attempt too much in some cases; or there may be local competition in place of co-operation; or the body of management may not be sufficiently tactful or of notable organising ability—all of which things detract. Moreover, often the best laid schemes do not always terminate as they were intended to, and bad meteorological conditions for one or two days may ruin the patient work of months. These cases where this occurs are especially to be regretted.

But shows and showing, as we have said, have been huge factors in making horticulture known and loved. From the early days when the Norwich weavers nursed their Tulips to the present time, when a dozen flowers claim a society each to their credit, the work has been progressing. In an admirable paper on this subject before the Scottish Horticultural

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Association, Mr. Robert Service, of Dumfries, furnishes suggestions which deserve consideration. To begin with the village shows, it is perhaps impossible to over-estimate the good that has been done by them. Like a network they now spread, and are still spreading, over the entire country. Their field of operations is sufficiently varied, as we all know, and not all of their work is to be seen on the show tables. One of the most beneficent things they perform is the inducing of competition for the best kept gardens within defined districts. We have all seen the village kailyard with its unkempt hedges, its dishevelled Potato patch, its disorderly ranks of Cabbage and Greens, its ill-bounded and weed-encumbered paths, converted within a season or two into areas of neatness and cleanness, with crops of vegetables and borders of plants and flowers that would do no discredit to the best professionals.

Nor does such a change begin and end with the garden. The man himself has improved morally, and his life has been brightened and sweetened, his table comforts are higher and more varied, the artistic effect is distinct and visible within the cottage, wife and children are cleaner, tidier, their aspirations rising towards more refinement. So with the next-door neighbour, and house after house throughout the village and vicinity. A whole community has been elevated and improved by simple, easily applied, and perfectly natural means. Is there not a pregnant lesson here for our politicians? Rural depopulation is a pressing problem that is calling loudly for solution. It may be that our village horticultural societies can show us one direction in which practical spade work will lead with certainty to good results.

At the same time, those who have it in their power might use their influence to alter the monotony and stereotyped display at country shows by gradually eliminating and suggesting substitutes for the orthodox Geranium and the everlasting Fuchsia. Dear to us all are the flowers that fostered our first floricultural affections, yet fresh forms are desirable, and good things often become stale. Similarly, amongst the exhibitors of vegetables, there is a most formidable amount of prejudice in favour of mere size and bigness to be overcome, ere the rural competitor learns the lesson that fitness for table is the fundamental test.

Take, now, County shows. In their origin, these, as we have already indicated, had their germ in the old florists' societies. Goodly plants grew from the seed sown in these rather remote days, and although many have matured and died, others are growing still. Not so extensive, nor so wealthy, nor so ambitious, and not looming so large in the public eye, as the national shows do, yet these county gatherings are doing true and good work for horticultural science. They gather up, and often push on to higher platforms, the best of the amateur competitors from the rural shows; and they furnish the favourite battleground for the professionals.

The question arises, How best may shows in general maintain their prestige and success? There are not wanting signs that flower shows are approaching something of a crisis. The ordinary, average show has an unmistakable difficulty in drawing the necessary attendance, and means will have to be sought and found for attracting the public and sustaining their interest. A complaint one often hears is in reference to what they say is the perpetually recurring monotony of the exhibition tables. Enthusiasts never see it, for every plant and flower is a new and distinct individual to the trained eye.

But the general public see only a stand of Roses, or of Dahlias, or a few bunches of Grapes. They are oblivious of gradations of quality, or points of excellence, or the reverse, which in most cases they cannot see when pointed out to them, or at least these differences are not discerned with a sense of appreciation. Let us have more competitions in new and untried subjects, or the old classes might at least be varied and rearranged. Let us get away from the well-trodden paths. Try new dates, new classes—make a new departure, and so remove the sense of weariness at sight of the same things year after year.

Another practical consideration for the improvement of our shows is the proper choice of judges. On this depends much more than is imagined. A very special aptitude, long and vital experience, a really judicial mind (which is not a common occurrence) are all required of our show judges, and should be insisted on by all societies from their managing committees. And more than that, all young and untried judges should be prevented from experimenting upon the exhibits of innocent competitors until they have themselves been judged by some supreme tribunal. Would it not be a good and desirable system to have certificates of competence issued to all men who aspire to be judges?

GRASS v. TILLAGE ORCHARDS.—This subject was discussed before the Chester Paxton Society on February 20, by Mr. G. P. Miln, who drew attention to the disadvantage of growing young fruit trees in grass.



Cultural Notes: Dendrobiums.

The pruning of Dendrobiums and other orchids was a good deal written about a few years ago, and various opinions given as to its effectiveness. Some cultivators went so far with many species that they cut off everything in the way of stems, simply leaving the basal eyes to shoot, treating them, in short, like a herbaceous plant in the open border. Manifestly this must be quite unfair to the plant. Take *D. nobile*, for instance, is one of the worst sufferers at the hands of the pruner. The stems of this species contain all the necessary nutriment to nourish the young shoots that occur at the base of each, and it surely must tend to weaken these if the stems are removed.

Rational pruning would consist of removing all old and decayed stems; those that are shrivelled and any that by their position would retard the progress of the young shoots. Especially necessary are the latter with such plants as *Odontoglossum grande*, that swell considerably at the base rather than elongate. But in this case removal of the bulb that has produced the young growth would not do at all, as decay may set in and ruin the latter; but any from farther back on the rhizome may be taken, and as the new pseudo-bulb develops it will elbow the other away to make room for itself.

For propagating purposes it is often necessary to remove stems of the class of Dendrobiums alluded to above. Any that have recently flowered, but that are not shrivelled, may be taken off and laid out on pans, or boxes of moss. These soon break into growth at the nodes, the resultant stems making nice little plants by the end of the season, when they may be separately potted or massed several together to make larger specimens. *D. nobile*, *D. Bensoniae*, *D. Devonianum*, *D. Pierardi*, *D. macrophyllum*, and *D. primulinum* are a few only that I have been very successful with in this way, but there are many others, especially the noble hybrids, that may just as easily be propagated.

Plants obtained this way are far more healthy and vigorous, as a rule, than are others produced by division of the old specimens, and they soon make fine plants. It may be recommended, then, to anyone having a small stock only of a rose variety, or hybrid, as a means of rapidly increasing it, while an old or diseased lot may be thrown away and entirely replaced by these healthy youngsters in a very few years. Thus far pruning is right, and essential to the health of the plants; but beyond it is not wise to go, especially by amateur cultivators, who should learn to cultivate them properly before rushing to rash and possibly fatal experiments.—H. R. R.

Orchids and Leaf Mould.

Pointing to a plant of *Odontoglossum crispum* on his exhibit at the recent Drill Hall meeting of the R.H.S., Mr. S. Whitelegg, of The Grange, Southgate, said, "Look at those flowers; they are entirely flushed with red. That plant used to be grown in peat and sphagnum, and produced beautifully spotted crispums, but having shifted it into leaf mould, you see the result." One had to admit that the precious "spotted crispums" were not there, but only a very ordinary red-flowered form. The inflorescence was undoubtedly strong; but that was no compensation.

The editor of "American Gardening," in the issue for February 13, asks, "Is leaf mould a proper soil for orchids?" He continues: This question is one of the most real before the horticultural world to-day; but, despite the attention given, we are apparently as far as ever from a real solution. Before a meeting of the Horticultural Society of New York two skilful orchid growers stated views seemingly diametrically opposed. On the one hand it was told that the domestic leaf mould was not so porous as that known as Belgian, and on which the European growers relied; and it was proposed to remedy this condition by adding sand and charcoal, which, of course, provides drainage. It was argued that the roots of orchids growing in leaf mould will decay as the leaf soil itself rots. Are these two growers so very far apart in their ideas? It may certainly be conceded that in their native haunts the epiphytal orchids will be found with various dead and dying leaves, bits of woody twigs, &c., about their roots; but that this is to be taken as evidence that leaf mould dug from the ground is demanded by the orchid seems to us to be assuming altogether too much. Débris of one sort and another will naturally collect about the roots in a state of Nature; its presence is accidental and its service, if any, but very slight.

Some remarkable successes with leaf mould are reported by European growers; so far our cultivators have not found any

special merit in the use of the article. It is possible that the conditions of culture on the different sides of the Atlantic, and the different methods of watering which are followed on account of different climatic conditions, will account for these varying reports. On the admission of those who advocate the use of leaf mould here, drainage has to be specially provided for and even sterilising by steam. From a purely practical standpoint, therefore, is the game worth the candle? Is there any necessity of making a new orchid culture for the sole purpose of saying that we can grow orchids in leaf mould?

Cypripedium aureum virginale.

CYPRIPEDIUM CULTURE.—*Cypripedium aureum virginale* is a cross between *C. leeanum* and *C. villosum*, and consequently a *Cypripedium* of fairly easy culture. It flowered at Chardwar last year, but the flowers were not so large as the one figured owing to lack of vigour. To get large flowers on *Cypripediums* it is necessary to get fine healthy foliage, and this can only be got by constant attention to the root action. In my opinion, an ideal compost for *Cypripediums*, except perhaps the *niveum*, *bellatulum*, and *Godefroyæ* section, is equal parts of loam, peat, and sphagnum moss freely intermixed with finely broken crocks and coarse silver sand. When repotting I always have a pot of each of the above by my side, and mix this with the compost as I pot the plants.

Water should be given sparingly to newly-potted *Cypripediums* until the roots have found their way into the new soil. At this period the moss will often look dry on the top, while underneath the compost will contain enough moisture to last the plant for probably two days, and if watered injudiciously the loss of roots will be the result; on the other hand, the plants must never be allowed to get too dry.

The temperature should never get below 60deg F. by night, and should be kept as near 65deg F. by day as possible with artificial heat, allowing a rise of 5deg sun heat. Ventilation is a matter of great importance. Our bottom ventilators, which are close to the hot-water pipes, are never absolutely closed, but air is admitted more freely when opportunity affords; even at this time of the year I admit air by the top ventilators when the conditions outside are favourable, taking care to avoid cold draughts, as this is one of the greatest enemies to orchid culture.

Cypripediums are undoubtedly moisture-loving plants, and frequent syringing between the pots is very necessary. At this time of the year perhaps twice a day will suffice, but this depends upon the conditions of the house in which the plants are growing. If the atmosphere is kept too dry thrip and red spider will soon attack the plants, and do a great deal of damage. This, however, can easily be avoided by carrying out the above directions and fumigating at least once a fortnight with XL All vaporiser.—W. H. PAGE.

Cypripedium Thompsoni.

This beautiful *Cypripedium* is the result of crossing *C. villosum* with *C. calypso*. The dorsal sepal which recurves towards the base has a background of white suffused with purple, with a darker purple central line running from the base to the apex, the measurement being 2½in across the broadest part. The petals, which are of a greenish-brown, measure 5½in from tip to tip. The pouch is of the same colour. On the whole, the flower is well balanced, and is one of the best hybrids yet raised. The cultural details are the same as above mentioned.—W. H. P.

BOTANISING IN KASHMIR.—Kashmir is situated in the north-west corner of the Himalaya, with Afghanistan to the west, Turkestan on the north, and Tibet to the south-east. Travellers on entering the land are required to pay a toll. There is nothing tropical about the vegetation of Kashmir. The forests produced a variety of timber, including the Maple, the Poplar, the Willow, the Elm, the Indian Horse Chestnut, the Himalayan Blue Pine, the Himalayan Silver Fir, and others. Thorny shrubs occupied greater prominence than in Britain. Kashmir did not receive the monsoon rains of India, but it had a considerable rainfall all the year round. In describing the country a former commissioner had said that looking to the north one saw a sea of mountains, broken into white crested waves, hastening in wild confusion to the great promontory. In order to botanise in the high ground it was necessary to camp out, but if any length of time was spent in the valleys boating was very preferable to camping.

Novelties and Rarities.

COLOURED FREESIAS.

Freesia Armstrongi (mauve pink), and *F. kewensis* (lilac pink with light orange yellow tube), are flowering in the Cape House, Kew. The latter is a hybrid.

METROSTIGMA AXILLARIS.

This has foliage and habit like a *Gardenia*, and its clusters of fragrant white flowers remind one of *Orange blossom*. Plants of it are in the warm *Begonia* house at Kew.

EPISCIA CUPREATA.

This is an ornamental-leaved plant of pendant growth, grown in baskets in the stove at Kew. The nearly orbicular, deeply ribbed succulent foliage has a beautiful rose-metallic



Cypripedium aureum Virginale.

lustre over the brownish-green body colour. The plant is gesneraceous, and enjoys heat, moisture, and a fair amount of shade.

A NEW ACALYPHA.

Acalypha Hamiltoniana (Chancier, 1903) is a very beautiful foliage plant, seemingly new to our gardens. A single plant in an 8in pot is in the stove at Kew. It has an erect, woody stem, with lateral branches bearing abundance of half-drooping leaves. These are of various shapes and sizes, according to their position at the apex, or lower on the branches. Some are long and narrow (½in broad), but the fully developed ones are generally of the *Acalypha* shape (*A. musaica*, say), but with greatly drawn out (acuminate) apices. The body of the leaves is smooth, and of a moderately light green colour; but the edges are pale creamy yellow. The edges bear characteristic, fairly regular rows of obtuse, tooth-like growths. These are all yellow, and together with the graceful, slightly drooping habit combine to constitute one of the finest new additions to the tropical plants of our gardens.

THREE NEW SHASTA DAISIES.

Luther Burbank, Santa Rosa, Cal., is offering this year three new *Shasta* Daisies, named respectively *Alaska*, *California*, and *Westralia*. These are selections of the original *Shasta*, combining all the good characteristics of that popular plant with increased vigour and perpetual blooming qualities.

Horticultural Education in Yorkshire.

IT is now about ten years since the East, North, and West Ridings of Yorkshire, in conjunction with the Yorkshire College, Leeds, organised instruction in horticulture, and the work during that time has steadily developed. At present there are three instructors working under the direction of the agricultural department of the College, viz., Mr. Thos. Redington, Mr. Alfred Gaut, and Mr. Frank Redington. The instruction has taken the form during the winter months of courses of lectures, these extending to about five lectures each; and it has thus been possible to visit a large number of centres in all three Ridings.

The value of practical instruction was not lost sight of, and during the summer demonstrations in orchards and private gardens were arranged. It was felt, however, that more thorough work could be done on a piece of ground under the direct control of the instructors, and provision was made for this wherever possible. Classes in horticulture were being conducted in various evening schools in Yorkshire, and it seemed desirable that students should also receive instruction in practical gardening work. A start was made by the establishment of a few gardens in connection with these evening classes, whereby it was possible for the pupils to commence work in the very early spring and to continue the work until the crops were taken off the ground. The teacher of the evening class was responsible, under the direction of the instructors in horticulture, for the work being carried out by the pupils in the garden. The ground selected is of a size that permits of 25 students each having a plot extending to about 50 square yards. The pupil is provided, at the expense of the County Council, with tools and manure, and also with seeds and plants that should be found in every kitchen garden. All the work, such as digging, weeding, sowing of seeds, &c., has to be done by the pupil himself, and he is entitled to whatever is produced on the plot. In this way there is a decided incentive to make the best of the opportunities, and a healthy rivalry is stimulated amongst the pupils in each garden. No student is admitted below the age of thirteen, but there is no maximum age limit, the only other condition being that the student attends the theoretical class in horticulture held during the winter evenings.

Arrangements for each pupil are made to continue the practical work in the garden for three seasons, at the end of which time he has to make room for new pupils. Through having taken part for three years in practical gardening work he is in a position to take an allotment or a garden and work it with a good promise of success. It is not the intention, of course, to turn out gardeners in the full sense of the word, although some follow the occupation of gardening and have proved themselves very capable gardeners indeed. The value, both physically and mentally, to young lads of such a training cannot be over-estimated, and especially in the case of those who are engaged in mills, factories, and mines. As a rule the lads take great interest in the work; they become keen observers, and the improvement in health and manners is often very marked.

In addition to the scheme in connection with evening school classes in horticulture, another branch of practical work was initiated in connection with allotments, whereby a portion of the allotment was set aside to be worked in accordance with the recommendations of the instructors. This scheme permitted of adults taking part in the work, and has been most valuable, especially where new land has been acquired for allotments, or even where interest in existing allotments has been on the wane. The seeds and manures are supplied by the County Council on condition that the plot is worked strictly in accordance with instructions, and the produce, as in the case of the other gardens, is the property of those members who actually do the work.

In order to properly carry out the above schemes, which, as will be seen, entail careful supervision and instruction, it was soon apparent that the teachers of theoretical instruction in the evening schools should themselves have undergone some training in both theoretical and practical horticulture. A summer holiday course was organised, but it was hardly to be expected that the same interest could be shown in the work at a time when the teacher ought really to be recuperating for his general school work; and although the results were fairly satisfactory, it was still felt that there was room for more thorough instruction. Accordingly the County Councils provided facilities for teachers to attend Saturday classes at the Educational Farm at Garforth, near Leeds. It is only possible in these classes to deal with the subject of horticulture and experimental plant physiology. The teachers have practically to give up the greater part of the Saturday when attending these two classes, and to make the course as complete as possible the work is extended over two years.

The work, as a rule, begins in October and ends in the following June, so that the members take part in the chief practical operations connected with the cultivation of ordinary garden vegetables. The practical instruction is given in the garden at

the farm, and the teachers are responsible for a plot of ground. Mr. Thos. Redington takes the subject of horticulture (theoretical and practical), and Mr. Norman Walker conducts the class in experimental plant physiology. The work in this latter class is again of an entirely practical character, and has a direct bearing upon the subject of horticulture. These classes have now been conducted for three years, and there is every reason to be satisfied with the scheme, which enables a number of teachers to receive instruction that is more thorough in its nature than in any course previously attempted.

The accompanying illustration is from a photograph of the instructors and members of the class that is being held during the present session. Mr. Thomas Redington is the centre figure in the front row, Mr. Norman Walker is on the right hand, and Mr. Frank Redington (assistant in practical horticulture) is on the left. All of those standing are students of the Saturday class mentioned in the notes.

Streptosolen Jamesoni for Winter Flowering.

The floriferousness of this greenhouse shrub has prompted me to remark upon its qualities as a winter-flowering plant. It is familiar to most of us as a rampant growing subject, as a rule, planted out in a border at the base of a greenhouse wall or partition, where its loose growing habits specially recommend it for covering anything of that character. Sometimes a well-grown plant is observed hiding an unsightly pillar, or better still, tied neatly to a wire trellis; whichever of these purposes it is intended for, it generally succeeds with but few cultural requirements to give a wealth of its magnificent orange-coloured blossom.

I have before me a batch of plants grown from cuttings inserted last March. They readily root, consequently timely potting is necessary to suitably sized pots. It will be found a great gain to finally pot them into 6in or 7in pots. This serves the purpose of convenience where space has to be considered, also to some degree a too exuberant growth is arrested. The plants after being judiciously hardened off in their earlier stages of growth, and having received their final potting, may be grown throughout the summer, plunged in a bed of ashes, placed upon a firm bottom, and exposed to direct sunlight.

The roots being somewhat curbed in the pots I have mentioned for this subject, also a naturally gross rooting plant, copious waterings are essential of liquid manure applied at intervals throughout the summer months. Two evils to be avoided are overdryness and attacks of red spider, which are sure to result in the leaf falling prematurely, consequently causing an unsightly, leggy appearance. During September the plants may be housed in a temperature not falling lower than 55deg at night. This will enable the flower trusses to develop and expand freely. These cannot fail to be admired by everyone for their attractive brightness throughout the winter months.—F. W. G.

Tropical Plants.

(Continued from page 140.)

TRAILERS AND CLIMBERS.—Permanent occupants of our plant stoves, in the way of trailers and climbers, are a power in themselves to make a house attractive. We want, in fact, to utilise every inch of available space whether overhead or underneath with the above object in view, although never losing sight of the evil of overcrowding or unduly darkening the roof.

In most cases, however, the floor (walk) space gives a corresponding vacancy overhead for the disposal of trailers on wires, and this position also facilitates the necessary tying and training without directly interfering with the legitimate occupants of the house. Amongst the many fine plants suitable for this four only will be mentioned, these being, in our opinion, practically indispensable. The first is *Allamanda Hendersoni*, the next *Bougainvillea glabra*; and as these two noble flowering plants deserve not only the best treatment we can give them, but as much license as possible in their free-habited growth, the higher portions of the roof may be devoted to them by straining horizontal wires underneath it for their support. In no case, however, should this necessitate the growths being crowded against the glass; indeed, if the height of the plant stove permits, the supporting wires may be kept 2ft or 3ft below it. Neither should working head room be so restricted as to rob these elegant trailers of their beauty by having to keep them tied up in prim uniformity.

To do both the *Allamanda* and *Bougainvillea* justice, planting out where possible should be resorted to, and main stems carried up a pillar from whence growths may be diffused as far as space provides. Our quartette of climbers is made up with *Stephanotis floribunda* and *Passiflora kermesina*, neither of these requiring so

much head room as the former. With the *Stephanotis* we would insist that it should hold a roof position immediately over one of the paths to facilitate frequent examination as a preventive to mealy bug gaining a hold. As, by the way, mealy bug is the greatest pest the tropical plantsman has to contend with, special attention will be paid to it in due course. The true *Elvaston* variety of *Stephanotis* is so infinitely superior to the older form, that the wisdom of obtaining it is obvious.

Passiflora kermesina we regard as the gem par excellence of the great *Passiflora* family. This beautiful species loves bottom heat and high tropical treatment, and we find it best to renew the plants by propagation at least every second year. Given the conditions it loves, a spring-struck plant is able to stretch along a wire 20ft or 30ft in a season, and when clothed with laterals depending from the main stems, and furnished with its unique crimson blossoms not much larger than a shilling, it is a beautiful object, and one deserving the highest meed of praise.

TREATMENT.—The above overhead subjects may now receive their annual pruning, which consists of thinning out weakly

to a warm, damp wall, is a singularly handsome foliage plant which might be oftener seen. *Cissus discolor*, too, if introduced to the foot of the wall with the creeping Fig, will eventually amalgamate with it by finding a foothold for its rooted joints in every crevice.

An end wall often gives more scope for stronger growers. Possibly some rough rockwork can be made to give pocket space for *Rex Begonias*, whilst from the top, given a suitable cavity to accommodate it, *Asparagus Sprengeri* loves to hang in graceful sprays, depending, may be, 6ft or 7ft in length. Last, not least, is a plant which, in the high tropical tone investing it, has peculiar claims upon us. This is that singular and handsome Aroid, *Monstera deliciosa*. Some who know it—there are many of the rising generation who do not—may, of course, summarily dispose of its claims in saying "No room." To this there is only one answer, viz., "That's a pity."

FLOOR SPACE.—We strongly advocate the introduction into the plant stove of plenty of boulders or rough rocks; these may be made to outline the walks, as well as being disposed under the



Teachers' Saturday Class for Horticulture. (See text page 180).

growths and pruning back the stronger laterals to within a few eyes of the main stems. A washing given with a soft painter's brush and half-a-pint of Fir tree oil to a gallon of warm water puts things in order for a clean start. Whether the above are planted out or have of necessity to be confined to tubs, boxes, or pots, a top-dressing of fresh soil in which a few handfuls of Clay's fertiliser have been incorporated will be of distinct benefit, and do much to promote that healthy growth which goes hand in hand with cleanliness.

DEAD WALLS.—With a back wall, as provided by a lean-to structure, or a hip span formation, or with a dead end wall, we have grand opportunities for displaying a bit of natural tropical work that no other style of house gives. It may be, however, that limited room, so far as the back wall is concerned, will allow for little more than draping it with suitable plants. *Ficus repens*, of course, is a draper that gardeners naturally fly to, as it holds the same position in our houses that the Ivy does outside in charitably clothing the naked; but, although its usefulness for furnishing decorative sprays gives it another claim to the position, there is no reason why it should monopolise the chosen spot. *Æschynanthus Lobbi* and *Æ. fulgens* are beautiful flowering trailers which may be planted in conjunction with it, and *Pothos argyrea*, which clingeth even closer than its brother *Ficus*

stages. With the addition of some old potting soil worked in between the stones, an admirable groundwork is provided for the planting out of *Rex Begonias*, *Panicum*, *Fittonias*, *Selaginellas*, and ferns. The arching, bright green plaited leaves of *Panicum plicatum* here, too, commends itself for notice, as well as being useful for cutting.

STAGING.—The hideous step-ladder arrangements, which seemed especially designed for showing off the pots, are now happily all but obsolete; flat tabling on which the plants can be, if necessary, elevated on inverted pots having taken their place. This gives us an opportunity of draping the edges of the staging with *Panicum variegatum*, *Ficus minimus*, *Pilea muscosa*, and other modest plants, which quickly furnish the position if afforded a foothold by some clean gravel and fresh moss interlining the edging of virgin cork. As a rule these edgings will repay the trouble of an annual replanting, and now is the time to do it. The *modus operandi* merely consists of little bunches of cuttings tightly rolled in fresh moss being wedged firmly in the interstices of the cork bark, or disposed along its inner edge where the gravel can be made to hold them in position until rooted, which, if kept moistened with a can and rose, is but a matter of two or three weeks.—A. N. OLDHEAD.

(To be continued.)

NOTES

NOTICES

Horticultural Club.

The next house dinner of the club will be held on Tuesday, March 8, at 6 p.m., at the Hotel Windsor. The Rev. Professor Henslow, M.A., F.L.S., V.M.H., has kindly promised to read a paper entitled, "The Objects of Botanising Exeursions."

March 7, 1804—March 7, 1904

Next Monday marks the completion of the 100th year of the existence of the Royal Horticultural Society. We all hope that it may live till the second hundred is recorded, and carry all the while as bright a history of accomplishments as in the century that has gone.

English Medal for Nova Scotia Fruit.

The Agent-General for Nova Scotia informs us that the Crystal Palace authorities have presented a special commemorative medal to the Nova Scotia Government for the splendid exhibit of dessert, cooking, and cider Apples which have been displayed by the Fruit Growers' Association in the Canadian Court during the last three months.

Mr. Peter Barr.

The Daffodil King having been to Khartoum, writes to us, under date of February 20, to say that he was then on the point of starting for Palestine, Galilee, and Syria. He intends to be home in June, and is to deliver an address on his tour in August before the Scottish Horticultural Association at Edinburgh. With reference to the Royal Horticultural Society's subscription, Mr. Barr thinks the Fellows were wise to adhere to the guinea figure, as "the Crystal Palace Co., in its early days, killed itself by going from 21s. to 42s."

New Ornamental Garden for London.

A new enclosure in Hyde Park is being formed by the Office of Works, and will contain plant houses and forcing frames for the plants required for the service of the Royal parks, in place of those now in use, which stand in Kensington Gardens and spoil the architectural effect of the palace and of Wren's Orangery. Some of the existing houses are in bad condition, and it is essential that they should be renewed. The area now occupied by the houses and frames in Kensington Gardens will, when vacated, be laid out as an ornamental garden. Substantially the public would gain three acres of lawns and flower beds in exchange for about an equal area of grass land taken into the new frame ground. When the works are all finished and the plantations grown there will be also a gain in picturesque effect, both in Hyde Park and Kensington Gardens. Some alterations are being effected in Green Park.

Agricultural Correspondents.

Lord Onslow has given to the "County Gentleman" some interesting information on the subject of Honorary Correspondents to the Board of Agriculture. The President's plan is to divide England and Scotland into sixteen divisions, and to appoint from a dozen to thirty correspondents, each working from a good market centre. These men will thus fairly represent the variations in British agriculture, and each will be inspired by his own particular local patriotism. Hundreds of applications have been received, and the names have been carefully sifted by a committee of the Board's officials, aided by the inspectors who have personal acquaintance with the leading agriculturists in their various districts. Lord Onslow is convinced that the plan of making this work honorary is the best. The correspondents, however, will not incur expense in serving the Board of Agriculture. They will be provided with official stationery, their letters will be franked, and they will receive all the various publications of the Board of Agriculture. Humble as this scheme may appear, we cannot help thinking that the Board has hit upon one of the best and safest plans for discovering the needs of the British farmer. If the honorary correspondents do their work properly the Board of Agriculture should be provided with the most valuable material for successful legislation.

Highgate Horticultural Society.

The secretary informs us that the annual exhibition of this society will be held on July 14 next, in the grounds attached to "Hillside," Fitzroy Park, Highgate.

Obituary: Mr. Charles Booth of Dronfield.

The death of Mr. Charles Booth, of Dronfield, occurred on February 22, after a short illness, from influenza, at his residence in Holmeley Lane. The deceased took the greatest interest in horticulture, and frequently acted as judge at local shows.

Wheldon's Catalogue.

Messrs. John Wheldon and Co., 38, Great Queen Street, London, W.C., are well-known dealers in books pertaining to gardening, &c. We have just received their "general clearance catalogue of a miscellaneous collection of books, including botany, entomology, ornithology, and general literature."

Injury to Street Trees.

Our contemporary, "American Gardening," furnishes a summary of a bulletin on "How Electric Currents Injure Our Shade Trees," by Prof. G. E. Stone, of Amherst, Mass., in its issue of January 16, 1904. Currents operating street railways have in some cases killed, and in other cases so stimulated street trees that they have speedily collapsed.

The Darrah Collection of Cacti.

The Manchester Parks Committee recently gave attention to the question of where it will be best to keep the collection of Cactus plants which they have accepted as a gift from the executors of the late Mr. Charles Darrah, of Heaton Mersey. Heaton Park finds favour with some members, but with others there is a feeling that the collection would perhaps be more serviceable if placed in Whitworth Park.

American Carnation Society.

The exhibition and convention of the American Carnation Society was held in Detroit, Mich., on March 2 and 3. Among the valuable papers discussed was the question of exhibitions of Carnations on lines similar to those adopted by the Chrysanthemum Society of America, which body, as is well known, has committees in certain large cities for the purpose of examining and passing upon the merits of seedlings and sports submitted to these committees for adjudication.

Royal Horticultural Society.

The next fruit and flower show of the Royal Horticultural Society will be held on Tuesday, March 8th, in the Drill Hall, Buckingham Gate, Westminster, at 1-5 p.m. A lecture on "Cottage and Allotment Gardens" will be given by Mr. Alexander Dean at 3 o'clock. At a general meeting of the society held on Tuesday, February 23, forty new Fellows were elected, amongst them being the Marchioness of Linlithgow and the Right Hon. the Earl of Northesk, making a total of 301 elected since the beginning of the present year.

The Horticultural Hall.

The new hall and offices of the Royal Horticultural Society proceed toward completion. On Monday last we were able to note that the great curvilinear iron or steel supports for the roof of the hall (which appears very large in its empty state) were mostly in position, so that that portion will soon be covered in. The front, or office part of the building, with its red-tiled roof, is finished, and makes a prettier show than a slate roof would. The front (facing the Playing Fields), though not ornate, is decidedly better in appearance than the elevation plans would lead one to suppose; for the building, though modest, has the qualities of breadth and solidity. Some of the main window spaces of the second floor have a circular supporting pillar in the centre, with ornamental coping, the entire edifice being built of red brick and creamy sandstone. The builders are Messrs. C. E. Wallis and Sons, Maidstone; Messrs. Kinnell and Co., Southwark, have the heating contract; and another notice announces that the asphalt is supplied by the Trinidad Lake Asphalt Paving Co., 7, Laurence Pountney Hill, E.C. It is odd that subscriptions are so hard to secure. Reading University College has been able to collect £31,500 in a week or two for its new ground and buildings; why not the Royal Horticultural Society?

The Journal's Dahlia Analysis.

This yearly feature of our pages will appear in the issue for March 24. Mr. E. Mawley is the compiler of it.

Annual Dinner of the G.R.B.I.

The annual festival dinner of the Gardeners' Royal Benevolent Institution takes place at the Hotel Metropole on June 28 next, when Harry J. Veitch, Esq., will occupy the chair.

Edinburgh Chrysanthemum Show.

The secretary of the Scottish Horticultural Association reminds us that the Chrysanthemum show of that society will be held on November 17, 18, and 19. These dates have been added to our list of fixtures.

Guide to Battersea Park, London.

A very interesting and useful guide, costing only 1d., has been prepared by the Clerk of the London County Council, under the direction of the Parks and Open Spaces Committee. This first edition was issued in January this year. The little pamphlet contains historical and botanical notes, as well as notes with reference to the games allowed. There is a photo of the wooden bridge from which the children throw crumbs to the fishes in the water. This spot is called the Lady's Pond. Also a valuable double-page plan of the entire park. If all the London parks are treated in the same way we shall have here a valuable series.

Cactus Dahlias in Canada.

To be correct we must say Prince Edward Island, Canada, for from that address Mr. G. H. Haszard, nurseryman, Charlottetown, sends us his catalogue, and his remarks anent prize-winning, show that Dahlias are as keenly appreciated by our trans-Atlantic kinsmen, as they are amongst ourselves. Our columns have also borne evidence of the cult in Tasmania, so that Dahlia growing is practically a hobby in every temperate climate. Mr. Haszard says he is always adding to his grand stock, and will catalogue from time to time only those of superior quality, discarding those which have been beaten in the race by new varieties. Goods in all cases are sent by mail or express, and are packed as lightly as possible, so that packages to most distant points have very small charges. In the past he has sent Dahlias as far as California, and they have arrived in good condition.

Sterilising Greenhouse Soils.

In Bulletin No. 186 of the U.S. Department of Agriculture Professor G. E. Stone, of the Massachusetts Experiment Station, has shown that sterilisation of the soil by heating (well known to all gardeners) is a very effective means of preventing or controlling the worst of the enemies of greenhouse plants, and this method is now used with success by many large market gardeners. The method as worked out by Professor Stone, in experiments extending over a number of years, is especially effective in case of Lettuce drop, timber rot of Cucumbers, rhizoctonia of Lettuce, Cucumbers, &c., "damping off," and nematode root disease, all of which are common diseases in greenhouses. As would be expected, the treatment is effective only with diseases transmitted through the soil, and is without influence on diseases disseminated through the air. But what of the soil bacteria?

Weather Notes from Newton Mearns.

If January has surpassed all other Januarys for mildness, February, I think, has done likewise in regard to its own month, though not so mild as the former. We have had frosts registering 12deg to 15deg on succeeding mornings, and falls of snow on three different occasions, but as the month has left us we can only now reflect on its goodness. It is seldom we have a February when so much outdoor labour has been accomplished with pleasure. Although February has been an exceedingly dry and delightful month, yet with the aid of keen frosts we have had checks, and, so far as vegetation is concerned, at the present moment we cannot say that things are forward (Snowdrops bloom, but Crocuses are not yet showing). We are glad, however, to see Nature still asleep, and should the present climatic conditions prevail for another week or two as they are just now—viz., raw and very cold—there will not be much fear of spring frosts doing as much damage as hitherto has been done in past years, as vegetation will not be so far forward as to allow any great damage being done.—N. R.

United Horticultural Benefit and Provident Society.

The annual meeting of this society will be held at the Caledonian Hotel, Adelphi Terrace, Strand, on Monday evening, March 14, at eight o'clock. Mr. H. J. Wright has kindly consented to preside on this occasion.

Weather in South Perthshire.

The greater part of the past week, from the 22nd, which was exceedingly fine, was cold and wet with recurring sleety showers, the 26th being especially disagreeable in the earlier part. Saturday and the afternoon of Sunday were again bright and pleasant. On the morning of Sunday 5deg, and on Monday morning 10deg of frost were registered. The hills continue thickly covered with snow.—B. D., S. Perthshire.

Veitchian Medals for Mr. J. Wright and Mr. T. Challis.

At an adjourned meeting of the trustees of the Veitch Memorial Fund, held on the 23rd ult., it was decided to offer the large silver medal for distinguished service in horticulture to Mr. John Wright, V.M.H., in recognition of his long and persistent efforts to diffuse amongst the industrial classes a practical knowledge of the cultural requirements of the vegetables and fruits most necessary for gardens, and as an author who has written several valuable treatises on subjects relating to horticulture. Also a similar medal to Mr. Thomas Challis, of Wilton House Gardens, Salisbury, for his long and many services to gardening, especially in reference to his improved cultivation of hardy fruits.

Irish Gardeners' Association.

A meeting of the Irish Gardeners' Association was held on February 23 in the X.L. Café, Grafton Street. Mr. F. W. Moore, the president, occupied the chair, and in his opening remarks said that the Association was making good progress. Its objects were to bring gardeners into closer association and communion with each other, to strengthen their position, and to help them in every way. The society also aimed at helping them in the time of sickness or distress. He appealed to employers to assist the society, as by so doing they would be better served by a better class of men. Mr. David Houston then delivered a lecture on the subject, "The Living Soil," which was illustrated by a large number of lantern views.

The Rarer Woodland Plants of Scotland.

At the monthly meeting of the Edinburgh Field Naturalists' and Microscopical Society, Mr. D. S. Fish read a paper on "The Rarer Woodland Plants of Scotland," in which attention was drawn to the varying character of the undergrowths of woods. The plants composing the lowest forest carpet fell into two groups—those that derived advantages from the presence of the forest, and those that did not, these latter consisting chiefly of light-demanding intruders, whose place was properly the wayside, meadow, and moor. Pine forests—often the site of former sphagnum swamps—contained on their floors a flora of their own, and it was chiefly here that *Moneses*, *Pyrolas*, *Trientalis*, and *Linnæa* were found, the first-named being by far the rarest. Such Pine forests, with their carpets, were not peculiar to Scotland. Covering large tracts of Scandinavia, they spread north and east, ascending the mountains as they approached the Mediterranean. In the northern countries of the great Western Continent they reappeared, slightly varied in form, and accompanied in some districts with other genera unknown to European woods. *Moneses*, a dwarf evergreen, with pure white drooping flowers, did not occur in England, and was one of Scotland's most beautiful and rarest flowers. Not increasing by seed here so freely as abroad, it was also much exposed to suppression, when the forest was felled or opened, by plants of stronger growth, formerly excluded by the shade cast from the leafy canopy.

The paper was illustrated by lantern views of trees inimical to undergrowths, and of Pine forests in Scotland with true carpet plants and their intruders. Mr. James Fraser exhibited mounted specimens of about 250 "alien" plants which he collected last year, chiefly in the waste grounds at Leith Docks, and at several other points throughout the county. He discussed the various agencies by which the seeds of these plants were conveyed from their native country to their new habitats, and the likelihood of their being able to establish themselves among our native plants, and mentioned a few which might be considered quite desirable additions to our flora.—"Scotsman."



Fruit Culture in West Middlesex.

Those who attended the fruit show of the Royal Horticultural Society at Chiswick Gardens in October last will doubtless remember there was also exhibited a collection of fruit trees which formed a fitting corollary to the display of fruit, because it indicated some of the types of trees from which the fruit had been gathered. The collection was furnished by Mr. George Cannon, nurseryman, Ealing, who, a few years ago, became the tenant of some ten acres of ground on the confines of Osterley Park, Southall, which is largely devoted to the culture of fruit trees; trained trees being a leading feature. By training and instruction Mr. Cannon is a fruit tree cultivator.

Going into Messrs. Osborn and Sons' nursery at Fulham when quite a lad he learnt the business of fruit tree propagation under Pitman, the fruit tree foreman of that once flourishing firm; he then went to Messrs. Richard Smith and Co.'s nursery at Worcester, gaining new experience; and from thence to Ealing to take charge of the outdoor nurseries of Messrs. J. and C. Lee, whom he served for the space of thirty years, and eventually established himself in business at Ealing. Few men are better acquainted with the rationale of fruit tree culture than Mr. Cannon, and an inspection of his nursery shows that he can turn out of hand trees admirably trained, clean, healthy, and full of promise. Few men possess a fuller knowledge of stocks, and their adaptability not only to certain kinds of fruits, but also to special varieties, and to some which are weakly growers, and require all the support an intelligent propagator can give them.

One special feature is the culture of trained Peaches and Nectarines, and the collection includes not only the newer varieties, but all that are worthy of cultivation. It is in the development of trained trees that Mr. Cannon's special knowledge of adaptable stocks comes into use to the advantage of buyers. To this end he has special selections of Brompton and Mussel stock for Peaches and Nectarines, for he has experimented with them for years past, and as the Peach does remarkably well in this part of Middlesex, there are secured the best guarantees for the future welfare of the trees. Maiden trees for training are planted out when young, at good distance apart, so that they may be in a free circulation of light and air to ripen the wood, and assist the production of fibrous roots. They are cut back the first year, then trained to three or four shoots; they are again cut back the following spring; the shoots are again trained fan-shaped, and in the following year there is a good specimen fit for sale. Mr. Cannon believes in laying a good foundation, and in the act of training in the various quarters, the importance of a proper ripening of the wood is acknowledged by each tree having ample space in which to develop. At the age of four years a portion of the trees are reserved to grow into extra size—four and five years training, large trees being required for special purposes.

Then selected stocks are specially cultivated to form half-standard trained trees required for planting Peach houses. The same details of development are observed as in the case of the dwarf trained trees; and the condition of four and five year trained trees, by their vigour, seems to demonstrate in a remarkable degree the adaptability of stock to scion.

Apples, Pears, Plums, and Cherries, trained, standard, and bush, are largely grown, and in the leading varieties; the trained and bush Apples are on the Paradise stock, and the Pears on that of the Quince. All free bearing Apples, such as Stirling Castle, Lane's Prince Albert, Potts' Seedling, Ecklinville, &c., are worked on a free stock. Mr. Cannon finds that when such sorts are worked upon a dwarfing Paradise stock they fruit heavily, but at the expense of the tree, and then it becomes necessary to thin the fruit and mulch on the surface, which is a somewhat expensive process. Such varieties as Cox's Orange Pippin, Warner's King, Bramley's Seedling, Newton Wonder, and kindred varieties, are worked upon the Paradise stock; the last two named are very strong growers, and when on the Paradise stock, and given a little assistance by mulching, the fruit becomes finely developed.

While fruit tree culture is a main feature, a general nursery stock is grown; there are many street and avenue trees; all the leading shrubs, Roses (largely grown), and there is an excellent collection of hardy perennial and bulbous plants. The Golden Privet, of which Mr. Cannon has a large stock of all sizes, colours here finely; it is one of the most useful and ornamental hardy shrubs for suburban gardens.

The prevailing soil is a deep, fertile loam resting upon gravel, which may be regarded as an ideal one for fruit trees, and its fibrous roots are produced in plenty. The nursery is admirably situated. It is bounded on one side by the Grand Junction Canal, and on the other by the main road to Heston, skirting Osterley Park. The electric tram cars from Shepherd's Bush through Ealing have a stopping place near the nursery, which lies off from the main road in a southerly direction.

At Ealing Mr. Cannon has his home nursery, at which can be found offices, seed shop, and many glass erections, in which a general collection of hard and soft-wooded plants can be found. Much of the park and street planting in Ealing has been done by Mr. Cannon, and his work in these respects has proved highly successful.—R. D.

Carnation Mrs. Thos. W. Lawson.

This grand variety, the beginning of what we may hope to become an improved type of American Carnations, has brought with it its own set of peculiarities, and its importance among the list of commercial varieties fully justifies its treatment in a separate article. Most varieties have their own particular faults, the analysis of which usually determines their value to the man who grows them. Most varieties, however, drop below the horizon of usefulness before a thorough knowledge of their wants becomes universal. It is seldom that a variety holds its place as long as Lawson has held its own. No Carnation has yet held such a conspicuous position as Lawson, and the variety to displace is not yet in sight. "Is it as good as Lawson?" is a stereotyped phrase: no one thinks of asking whether a new aspirant is better. It is a pity that a course of treatment followed for the elimination of an evil should prove a detriment in some other particular. The tendency of this variety to burst a large proportion of its calyces under ordinary conditions has led most growers to grow it at a temperature considerably higher than was thought advisable a few years ago. A temperature of 56deg at night has become about the standard, and with plants lifted from the field it is necessary in order to reduce the tendency to split to a minimum. Plants grown indoors all summer are much less apt to split than those lifted from the field, and may be grown two or three degrees cooler on that account. Anything gained in this way is appreciable, for an extremely high temperature has a tendency to fade the colour and reduce the size of the bloom. In the cooler temperature we are also less apt to run down the vigour of the stock. Lawson has a very vigorous constitution, and we may expect that any strong point in a variety will be quickly taken advantage of. It often matters little at the time being, whither the course pursued may lead in the end. In this way the strong constitution of this variety may prove its weakest point.

Considering the peculiarities of this variety, the selection of a suitable soil becomes an important item. A heavy soil usually aggravates a case of bursting calyces. A very light soil, combined with a high temperature, weakens the stems, and makes small flowers. A soil of a medium degree of heaviness is then the most plausible conclusion. Experiments have amply borne out the theory. The question of solid beds or raised benches also comes up for consideration here. The fact is quite well known that solid beds have a tendency to aggravate any evil resulting from dark weather, a cool temperature, and a general lack of activity in the surrounding conditions. We have always believed that a better paying crop of blooms can be grown on a raised bench than on a solid bed. Solid beds have their good points, but for midwinter work the value of a raised bench cannot be disputed. Probably the most serious defect in this variety is its habit of throwing short stems a long time after being checked.

Plants lifted from the field as late as latter August are apt to come short-stemmed until midwinter. Much, of course, depends upon the care exercised in transplanting. Field-grown plants are also more apt to produce the blooms in crops than those grown indoors all summer. Indoor culture has been tried almost everywhere, with the result that long stemmed flowers are cut very early in the season, and that a uniform crop of high grade blooms extends through the months when flowers are most valuable. The lower temperature at which indoor grown plants can be grown during their flowering season is an important factor in the quality of the cut and the vigour of the stock.

Lawson is an exceedingly heavy grower, and therefore will stand a rich soil and heavy feeding after it is well started. A maximum of exposure to the sun, is, of course, desirable with any variety, but the flowers of this variety are easily scorched by the full glare of the sun. Therefore a light shade must be put on the glass very early in the season. The clear glass is hardly permissible after February 1. The question of shading requires judicious handling lest a too heavy coat be put on too early. More will be said of this later.—J. (in "American Florist.")

Wood Ashes as a Fertiliser.

An average sample of unleached wood ashes contains about seven per cent. of potash and two per cent. of phosphoric acid, which at current retail prices of these plant foods makes average wood ashes worth about 45 cents per hundred pounds, or \$9 a ton, says A. M. Ten Eyck, in the "Industrialist," published by the Kansas Agricultural College. Besides the actual fertilising value by reason of the potash and phosphoric acid contained in the ashes, there is some value to ashes simply from the power which potash has to make the nitrogen of the soil available for plants by its chemical action on the organic matter and humus in the soil. The potash in ashes exists in a readily soluble form, and is thus immediately available for plant food. Ashes also contain a little magnesia and a considerable amount of carbonate of lime, which is of some importance because of its effect in improving the texture of heavy soils. The farmer can better afford to pay \$8 or \$10 a ton for good wood ashes than the usual rates for almost any potash fertiliser.

Leached ashes have rarely more than one per cent. of potash and one and a half per cent. of phosphoric acid, which will make them worth about \$3 or \$4 per ton. Coal ashes are probably not worth 50 cents per ton as a fertiliser, but on heavy soils they may often be applied with profit just for their loosening effect, and they are valuable as a top-dressing or mulch in fruit gardens. Sifted coal ashes absorb liquids, fix volatile ammonia and prevent offensive odours, and are valuable as absorbents under hen-roosts or in stables. Wood ashes should not be placed under hen roosts or in stables, because potash liberates ammonia and the quality of both the manure and the ashes as fertilisers is deteriorated.

On average soils, fruits and vegetables are benefited by liberal applications of wood ashes, and remarkable results have been obtained by the use of ashes on legume crops, especially Clover and Alfalfa. Ashes will not make so valuable a fertiliser for top-dressing for Wheat as when used with the crops mentioned. Corn, Kafir Corn and Cane will doubtless be more benefited than Wheat by the use of ashes as a fertiliser. However, if the soil is lacking in the potash element, a dressing of wood ashes will benefit almost any crop. Most of the soils of Kansas are well supplied with potash. If there is any part of the State in which this element of plant food is apt to be lacking in the soil it is in the eastern part, where the land is old and the plant foods have become exhausted to some extent. In the eastern and middle States it is more usual to apply ashes in orchards, or upon Onion or Cabbage fields.

Ashes are best applied in the spring, separately or in connection with phosphate fertilisers as a top-dressing. For cultivated crops the ashes should be spread broadcast after the land has been harrowed and made practically ready for the crop, and cultivated in by light harrowing. On Onions a light dressing is sometimes applied with good results when the plants are two or three weeks old, and I believe that no harm will come to the Wheat by a light application of ashes this fall, or early next spring. There will tend to be some waste to the soluble potash if the ashes are applied late in the fall or during the winter, by surface drainage or leaching.

Ashes may be applied at the rate of fifty to one hundred bushels, or one or two tons to the acre. One ton of good wood ashes will contain about one hundred and forty pounds of potash and forty pounds of phosphoric acid, which is more of each of these elements than any ordinary crop will take from the soil in a single season. If leached ashes are used, the quantity applied should be increased.

I think it will be impossible to spread the ashes thin enough with the manure spreader. Spread in this way, there is likely to be not only a loss of fertiliser because of the too abundant supply, but there is also likely to result injury to the growing crop by reason of the presence of too much alkali. Ashes may be applied by sowing broadcast by hand, provided the hand is protected, or it is possible by care to spread them thinly enough from a wagon with a shovel. If the ashes are fine and clean, it is possible to spread them with a revolving broadcast seeder.

In wood ashes we have the most serviceable and often the very cheapest fertiliser for peat and muck lands. Such soils are rich in nitrogen, and usually poor in phosphoric acid and potash. The nitrogen is also in an unavailable condition, and by application of wood ashes, potash and phosphoric acid are not only supplied, but by the chemical action of the potash on the peat the nitrogen is brought into a condition available to the plant. I know of farmers who collect the ashes of neighbouring villages. They usually furnish barrels into which residents prefer to put their ashes rather than throw them into the streets or door yards. I know of one instance in which a farmer, located two and one-half miles from town, collected ten tons of good ashes during the winter, which cost less than \$5 per ton after the ashes were spread on the field.

Sawdust has no value as a fertiliser, but it may have some value in the physical effects which result when it is applied to

light, sandy soils. It tends to make such soils hold water better, and when applied on the surface acts as a mulch to retain the water in the soil below. Such a combination of ashes and sawdust might be made so that the mixture could be applied with the manure spreader without getting on too heavy a dressing of ashes.—A. M. T. E.

Latania borbonica.

The corrected name now in use for this Palm by botanists is *Livistonia chinensis*. *Latania*, says the "Treasury of



Latania borbonica.

Botany," is a small genus of African Palms forming trees of 20ft to 30ft high, their stems marked with circular scars, and bearing at the summit a tuft of fan-shaped leaves, from the lower part of which the branching flower spikes, sheathed in incomplete spathes, emerge. The two sexes of flowers grow on separate trees, the males being disposed on many-flowered, the females in fewer-flowered cylindrical catkins. Both have three petals and three sepals. The fruits contain three rough stones, covered with a bony network. The round, or somewhat three-sided, yellowish fruit of *L. Commersoni* is about the size of a small Apple, covered with a tough rind, and containing a small quantity of pulp, which the negroes eat in spite of its very disagreeable flavour. It is a native of Bourbon and Mauritius.

WEST OF ENGLAND NEWS.—From the Isles of Scilly last Wednesday twenty-five tons of flowers were despatched to Penzance.



Ivy and Euonymus under Trees.

Where grass will not grow under trees very often English Ivy and Euonymus radicans will. The Ivy is often seen in positions of this character, and well it answers; but the Euonymus radicans is not so well known in this connection. It seems better suited running along the ground than it does climbing walls, making a better growth when close to the soil. There is a variegated-leaved form of this Euonymus which is very pretty; and both are quite hardy.

Cannas.

A batch of the above for summer flowering should now be started. Shake out all old soil from the roots of those that have been resting during the winter, and repot in a loamy compost in 60-sized pots, placing a single crown in each pot, and afford a moist temperature of about 65deg Fahr. Pot on when necessary into 48 and 32-sized pots, and keep well growing, and when the bloom spikes appear feed with liquid cowdung or "wash." The above mentioned temperature should be reduced 10deg when the plants are nicely growing to produce sturdy specimens. Successional batches may be started as required.—B.

History and Properties of Tomatoes.

The usual meeting of the Newport (Mon.) Gardeners' Mutual Improvement Association was held on February 10, when Mr. Woodward, gardener to E. Watts, Esq., Highfield, Bassaleg, read a very instructive paper on "The Culture of the Tomato." Mr. Woodward said the Tomato was introduced from Mexico in 1596, just before the Potato was. It was then generally called the Love Apple, and grown mostly as a curiosity; but sometimes used in soups and pickles. After 1870 they began to be grown in quantity in the Channel Islands, and later in the Canary Isles; but for quality there were none to beat British grown fruit. It was thought at one time that eating Tomatoes often produced cancer, but there were no grounds for fear. They contained valuable properties for the liver, also for diarrhoea and dyspepsia, and good for the brain.

Plants at Liverpool Botanic Garden.

At no period of the year are these gardens without something interesting to the garden-loving public, and especially is this the case at this season. On entering the long greenhouse we are at once confronted on the left by a handsome arrangement of choice bulbs, &c., including Hyacinths, Tulips, Daffodils, Narcissi, Lilacs, Callas, Azaleas mollis and Deutsche Perle. The colours are admirably blended, and make an object lesson for many gardeners, young and old. No clashing of gaudy colours have we here; all colours harmonise one with the other. Chorizema elegans, a magnificent New Holland (Australian) climber is evidently at home on the roof of this house, for 10ft of roof space is literally festooned with its long drooping racemes. Habrothamnus Newelli is also in full flower on the roof, the flowers being produced in dense terminal clusters.

In the large Camellia house there is a large show of varieties C. reticulata, with its large, semi-double, rose-coloured flowers, showing up distinctly above all others. On the front stage of this house, Cinerarias and Cyclamens create quite an effective blaze, ranging from the deepest blue to the purest white. These are intermixed with ferns and other foliage. The front stage of the stove house is, as usual, clothed with orchids: Dendrobium fimbriatum, Cattleya Trianae, C. Harrisoniae, and large pans of Coelogyne cristata, C. c. lemoniana, and Chatsworth var. Several of the cristatas are carrying fifty and sixty racemes of well-developed flowers. Coffea arabica is carrying a large crop of fruit, and a fine specimen of Seaforthia elegans has set several clusters of seeds, which are developing rapidly. Until recently succulent plants were not well represented here; but Mr. Guttridge has now obtained from various sources on the Continent a representative collection of these curious, and in some cases most beautiful plants. Agaves, Aloes, Cereus, Cotyledons, Crassulas, Echinocacti, &c., are here.—J. S.

The Double White Primula.

Double flowered Chinese Primulas are handsome subjects, and some of them ought to be grown in company with their single and stellate sister plants. The figure on the opposite page shows a considerably reduced subject, but it is easy to conceive the fine display such a plant, or a batch of such plants, would make. The botanical name is in keeping with the glory of the plant—Primula sinensis flore-pleno alba. The old Double White is well known, but it is still one of the best.

Strawberry St. Joseph.

A correspondent in Folkestone writes saying that he planted St. Joseph Strawberry last March; in June they commenced to yield, and they continued till November. He says: "I had some few ripe berries on November 10, and the next day cut off scores of half-ripe fruit. On some of the many runners not more than a few months old there were both flowers and fruit. St. Joseph can now be obtained from most growers at a not exorbitant rate. Another variety, however—St. Antoine de Padoue, of later introduction—is said to be even better. But either of these have a pleasant fresh taste derived from the Hautboy strain in them, and why fruit growers have not taken them up for trade purposes is surprising. I am satisfied the heavy soil of the East Cliff is admirably adapted for Strawberry culture. The rootlets seem fairly to revel in it, and the largest and richest Strawberry producing tract being in North Kent, is it beyond the range of possibility that East Kent should be similarly blessed? The county itself, unless coal-getting should one day alter the fair face of Nature, will always have to depend on agriculture."

The Violet Season in the Riviera.

The Violet season in the Riviera promises to be bounteous this year. The harvest time for Parma Violets is February and March. With the exception of the month of January, it is always harvest time for flowers in that favoured quarter. As a rule the first crop is sent for sale to London or one of the European capitals, and the second crop is distilled at Grasse or Nice or Mentone. The first-named, which is the headquarters of the industry, has thirty-five distilleries of oils and essences, at which are consumed annually some 1,200 tons of Rose leaves, 300 tons of Orange flowers, and probably as great a quantity of Parma Violets. Just now the price of the Violet flower is 11d. per 1lb at the distillery. Last season Rose leaves were 3d., Jonquil 1s. 6d., Mignonette 4d., the flowers of the Bitter Orange 2d., and Pinks 1½d. per lb. In price there is little to choose between the oil of Roses and Violets. The quotation just now to perfumers in this country is a guinea per ounce. Neroli, which is an oil obtained from the rind of the Bitter Orange, is 10s. per ounce; the oil of Geranium is 1s. 6d. per ounce, unless it is distilled over Roses, when the cost is double. Some 1,500 tons of Geranium leaves are treated at the factories yearly. It usually takes 1,000lb of leaves to produce 1lb of the essential oil.

Cineraria stellata at Leighton.

One becomes accustomed to stalwart and spreading types of Cinerarias from the new race of stellate forms, but when they assume a stature of a King's Life Guard the thought of lofty greenhouses rather than the lowly garden frame or pit seems a demand of the moment. In all fairness to the usual strains of stellate Cinerarias we do not commonly find such giants, nor do we need them, unless accommodation can be given them as specimens for the conservatory. I am not sure whether Mr. Bound looked upon such a production with any feeling of pride, but the usual accommodation of the greenhouse stages at Leighton were found to be inadequate for this particular plant, which already exceeds 6ft, and is still making upward progress.

There is a striking variedness of character in these Cinerarias which seems somewhat difficult to understand, for from the same sowing one may get quite dwarf, medium, and tall plants, as well as early, midseason, and late flowering propensities. For the time these Star Cinerarias hold the field, the true florists' type over which so many years of labour and scientific study were spent seems to have lost charm. Even these giants may be obtained without any extension in the size of pots; indeed, large plants are commonly found in comparatively small pots, smaller, in fact, than was often used for the old type.—W. S.

Producing New Breeds of Plants.

In the course of an address on "How new breeds of agricultural plants are produced," before the Glasgow Society, Mr. W. G. Rattray of Edinburgh observed, that in the great majority of flowers, the pollen, whether it was deposited by wind, insects or any other agency, or whether it was extraneous pollen introduced by the would-be producer of new breeds (after having manipulated the flower, and rendered it antherless by amputation)—began to germinate on the receptive surface of the stigma, and to produce a pollen tube. This was the commencement of the actual process of fertilisation or impregnation.

Of course, it was of the utmost importance that extraneous pollen applied to the art of artificial crossing should be in the proper condition, neither too old nor too young. The operator with his instruments removed the pollen from the stamens of the flowers selected, and applied it to the stigmatic surface of the flower operated upon—in other words, the breeder undertook to a limited extent the duties of Nature. He prevented self-fertilisation by removing the anthers at an early stage in the growth of the flower selected for manipulation, and with the guidance of knowledge and experience selected the extraneous pollen which he intended to introduce with a regard to whatever dominating influences or qualities it carried with it, thus stamping the future seed with its potency.

The pollen-tube grew in lengths with greater or less rapidity in different species of plants, and in the process forced its way through the conducting tissues in the interior of the style until it reached the ovarian cavity. It might be in the ovary that one or more ovules were found, and they could always distinguish in them certain parts, viz., a central mass of cellular tissue, known as the nucellus, enclosed in either one or two coats, called by botanists the integuments, and the whole was attached to the placenta by a short stalk. The integuments, however, were not entire, as there was a minute aperture at the anterior end, termed the micropyle, through which the pollen-tube could enter in order to reach the embryo-sac, which was within the tissues of the nucellus. The necessity for the pollen-tube to reach the embryo-sac, so that the contents of the former might be brought in contact with the contents of the latter, became evident.

The result of impregnation was that, inside the embryo-sac, an embryo began to form, and at the same time the fertilised ovule increased in size, until finally, with the contained embryo, and occasionally with some reserve food material in addition, it formed what was called a ripe seed. It might be thought that, since in most flowering plants the stamens were so closely related in position to the carpels, it would be a relatively easy matter for pollen to fall on the stigma and fertilise the ovules of its own flower. But this rarely happened, although barley and some of the grasses furnished examples where such a thing did take place, for it was known that they were persistently self-pollinated without the species seeming to suffer deterioration from this in-and-in breeding. Here it was that Nature played into the hands of the producer of new breeds, who had been able to change a two-rowed into a six-rowed barley, with all the characters of a first-class malting variety. An infinite number of new

and distinct breeds of oats, barley, wheat, clovers, grasses and roots had been produced by dexterous manipulation of the flowers before they had pollinated themselves. In some flowers, this self-fertilisation was prevented by mechanical means, the respective lengths or positions of the involved organs being unsuitable.

Again in unisexual flowers—those containing stamens only, or carpels only—self-fertilisation could never take place, and in not a few instances the stamens and carpels of the same flower did not ripen at the same time. The union of two sexual cells in the act of impregnation was, as a rule, only possible when they were derived from closely related parents, for it was only then that they exercised what might be called an attractive influence upon each other, resulting in a fusing together in the act of sexual reproduction. Such a union was known as hybridisation and its products as hybrids. It also proved that the real purpose of the sexual union in the plant was the combination of the dominating properties of both parents, but it was seldom that the hybrid resembled one ancestor almost exclusively. Hence it became clear that the inherited characteristics of both the male and female

cells were transmitted by sexual reproduction to the hybrid. Derivative hybrids arose when hybrids were again crossed with one another, or with one of the original parent forms. By this means it was possible to unite six species into one hybrid, and this was what the breeder termed composite or compound crossing.

In addition to this inherited quality, hybrids exhibited new peculiarities of growth not derived from their parent forms, including a tendency to variability, which was greatly enhanced in some hybrids, especially in those arising from the hybridisation of different varieties of the same species. Those from nearly related parents produced more vigorous vegetative growth, they bloomed earlier, and were more prolific altogether than the uncrossed plant.

They came now to a consideration of the breeder's art. It would serve no useful purpose to produce new breeds of agricultural



The Double White Primula.

crops which were not highly endowed with the power of producing, under ordinary conditions of cultivation, an abundant supply of germinating seed. It must, however, be borne in mind, that plants varied much with respect to the amount of seed which they ultimately brought to maturity. It was not their habit to produce a large quantity of useless seed, but rather to mature a few seeds, and leave the remainder undeveloped or in a rudimentary state. An annual plant produced seed, and there its duties ended, while a perennial plant, on the other hand, only did so when atmospheric influences and surrounding conditions were favourable. But under the influence of the breeder's properly selected extraneous pollen, improvements were produced, the plants sporting freely under the introduction of what might be termed new vitality. In short, the method of composite crossing, when followed, was sure to produce from fixed types, new breeds which were better than the original-parent plants. The producer of new breeds in the vegetable kingdom must also assure himself that he was quite able to control and correct defects in the respective plants which he had taken in hand—that was, that he could diminish or increase vegetative luxuriance, or that he could increase the number of flowers which produced perfect seeds, and, if required, transform the sterile nature into the prolific. With these objects in view, seedsmen had from time to time procured samples of every known variety of cereal seed distributed over the face of the earth,

both cultivated and uncultivated, every one of which had been grown, and its respective peculiarities observed and investigated through several generations. By judiciously incorporating the dominating influences exhibited by the respective pollens they have succeeded in producing grand varieties of wheat, &c.

How did the breeder of new varieties fix the permanent outstanding qualities of the breeds which he had called into existence? Assume that, as the result of the first year's work, he had been successful in crossing the flowers of a plant with extraneous pollen which had duly matured its seed. By merely inspecting these seeds no one could tell that there was hidden away within them a dominating potency resulting from the application of specially-selected pollen used in their formation. In the second year, the first progeny of the cross was sown out in spring under suitable conditions, and harvested in due course. All the seeds were different, each plant producing its own special kind of seed, this being the result of the infused new vitality. In other words, it meant that the first progeny of the crossed plants were sportive. However, the seed was gathered from each individual plant and kept separate. In the third year, in order to keep the work within due bounds, equal samples of seed, representing each of the individual plants of the first progeny, were taken and mixed, and then sown out in single rows, but sufficiently apart to allow of selection taking place when the plants matured, all the plants were visibly sporting, as evinced by the numerous variations. No selection, however, was made until harvest, when those individual plants which showed evident character in the wrong direction were removed, and thrown aside.

On the other hand, plants showing the greatest amount of reaction in the direction desired were selected, the resulting seed being thoroughly examined, and all small seeds removed. This was the second progeny of the cross. The fourth year the seed was again sown out in rows after having been thoroughly mixed, and, as before, the plants were still found to be sporting. No one could tell what the ultimate result would be; but when harvest arrived evident deteriorations were again thrown out, and those plants alone were kept which exhibited the combined qualities and improvements desired. The resulting seeds of each plant were now harvested and kept separate. This was the third progeny of the cross. In the fifth year the separate parcels of seed, the produce of the previous year's crop, were sown out, but the contents of each part set was confined to its own row, and, as the crop matured, it would be seen that in some of the rows all the plants were identical in their habit of growth, and the resulting seeds were similar.

Thus each row of similar plants represented a new fixed type, and it followed that the individual plant which produced the parcel of seed must have been fixed the previous year; but this, of course, could not be determined until the seed had been sown and matured. This was the fourth progeny of the cross. The proof of fixity of character was that the progeny from that seed repeated and reproduced in all respects the characters of the parent which gave it birth. Having thus far procured the fixed types, it was on their respective merits that they were judged, and only those were selected and preserved which showed the greatest amount of the desired improvement.

R.H.S. Lectures in 1904.

- January 26: "Oranges," by H. Somers Rivers.
 February 23: "Pomology as a Study," by R. Lewis Castle.
 March 8: "Cottage and Allotment Gardens," by Alex. Dean.
 March 22: "Heredit of Acquired Characters," by Professor Henslow.
 April 5: "Villa Gardens," by Hugh P. C. Maule. April 19: "Diseases of the Potato," by George Masee, V.M.H.
 May 3: "Enemies of the Apple Tree," by Mons. Chas. Baltet.
 May 17: "The Horticultural Phase of Nature Study," by R. Hedger Wallace.
 June 14: "Floral Metamorphoses," by Professor Henslow. June 28: "Hybridisation of Roses," by Mons. Vivian Morel.
 July 26: "Orchid Varieties and Hybrids," by John Bidgood.
 August 9 and 23: As yet undecided.
 September 6: "Gourds," by J. W. Odell. September 20: "Methods of Employing Roses in the Decoration of Gardens," by George Gordon, V.M.H.
 October 18: "Vegetable Sports," by Professor Henslow.
 November 1: "Planting Woods for Winter Effect," by the Hon. Vicary Gibbs. November 15: "Orchard Management from a Commercial Standpoint," by Professor Craig. November 29: "Hollies," by E. T. Cook.

Till the end of June the lectures will be given at 3 p.m., in the Drill Hall, Buckingham Gate, S.W.; after June, at the same hour in the Horticultural Hall, Vincent Square, Westminster.



Apple, Lord Burleigh.

Someone inquired about this variety recently: The fruit is excellent, probably the best late dessert Apple, but the tree itself is the worst grower that I know. It cankers worse than Cox's Orange; it turns mossy sooner than any other; the bark rots and the spurs canker right off, and nothing appears to be of any avail to check it. I have about seventy trees, and no matter what the soil, or position, or treatment, it remains a monument of ingratitude.—C. C. ELLISON, Lincolnshire.

The Gardeners' Association.

All who are connected with gardening, and have read the report of the latest meeting on page 164 will have experienced a feeling of satisfaction that the project has now some prospect of being presented in a tangible form. The writer of the report in question says with truth, "The matter is one of the most important gardeners have before them at this juncture, and on the success of the new form of the scheme will largely depend the welfare of the gardeners of the future." Yes truly, the form of the scheme contains the crux of the situation. Judging from the discussion, the question of remuneration bulked largely in the view of those present at the meeting, and here lies the greatest possibility of failure. Employers as a body never have, and at the risk of being accused of pessimism, I venture to assert never will be, dictated to upon the subject of wages. There are hundreds who do not pay more than 25s. per week, and many less, and whenever a vacancy occurs there is usually a more than sufficient number of applicants. How wages are to be generally raised by means of the operations of any association or society in the face of such facts as these I fail to see. I admit that such an association is greatly needed by gardeners, and it may in time effect changes in the life conditions of many, and may by continuous and prolonged effort cause better treatment to be meted out to employés.

It is not possible to disagree with the remarks which fell from some of the speakers in connection with commercial gardeners, especially when one feels that more and more to these men will be entrusted the gardening of the future. Those also who note the signs of the times cannot, I am sure, fail to see that the supplies from our colonies and abroad of almost every kind of produce during the periods when from climatic reasons our own supplies are nil or but scanty, must be reckoned as a factor in the employment of greater or lesser numbers of men in private gardening. Let us have "a fence round the profession with only one door" if we can prevent another body from growing up outside; but can we? We shall see, but I fear not; but then I am only—A PESSIMIST.

The Toad Flax and the Window Tax.

Coincidental with the repeal of certain Imperial taxes of the present era, it has occurred to me that the following romantic incident related in an old number of "The Gardeners' and Farmers' Journal," dated December 31, 1852, might prove interesting to some of the readers of the *Journal of Horticulture*. My late father was a reader of the journal in question at that period, and recently I came across the above number amongst a pile of other old papers, including also "The United Gardeners' and Landstewards' Journal" of 1846. Extract: "The following incident may be remembered by some of our readers, namely, that during the agitation consequent upon the abolition of the window duties in 1850, it was discovered that a plant of *Linaria Cymbalaria* lived for some years in a closed case on the top of a model of a portion of Tintern Abbey. It was found that the branches of this plant, which grew nearest to the light, produced leaves of the ordinary size, producing perfect flowers and fruit, whilst the branches which, at a distance from the light, produced neither flowers nor fruit, and the leaves were extremely diminutive. This circumstance was regarded as so very remarkable an illustration of the ill effects resulting from the want of light on vegetable life, the same cause was also thought applicable in its effect to human life; the inference, therefore, was a natural one, that, if the want of light produced these very small and feeble leaves on the little trailing plant, so must the same cause produce the like depressing effect on human beings

confined within the ill-lighted dwellings of the poor. This little, diminutive, and abortive plant was therefore carried by a deputation before the then Chancellor of the Exchequer, and displayed as an example of what the want of light had done to the little plant before him, and by inference what it had done and was doing daily to many thousands of the poor by means of the existing window tax.

"We were not told to what extent the sight of this little plant, languishing with leaves, and too feeble to bear fruit, affected the views of the Government, excepting that everybody knows that the window tax was instantly abolished. We do not know how many Linarias gardeners could furnish at the present moment were we distressed with a refractory Chancellor; but we may venture to say that there are in every garden in Great Britain examples more than enough testifying to the great soundness and value of the same principle—that is, indispensability of uninterrupted light in all cases whatever relating to horticulture, where the production of flowers and fruit is the object of the cultivator." Further *à propos* inferences were also adverted to in the same leading article.—WILLIAM GARDINER, Birmingham.

Gardeners and the Study of Potany.

Having read with interest the views of "Digitalis" on this subject in your issue of February 25, page 166, I must say he tries to paint the gardener in very poor colours. Not content with asserting him to be almost devoid of intellect, he also attempts to classify him as uncivilised. In the first place, certainly let anyone take to botany as a pastime if they choose. It will do them no harm; but, to be annexed to gardening, it is not at all essential. There are other subjects, I think, much more essential to gardening than botany. Latin, for instance, as an aid to correct pronunciation of plant names; also geometry, as an aid to laying-out, which should be another accomplishment; and a study of landscape work, another subject which in the course of a gardening career one has often to face. All of these, I consider, are much more necessary to a gardener than botany. He also says that about the time of his donning the blue apron he saw "that gardening without botany was as uninteresting to gardeners as the ploughing of a field to the passive intellect of the ordinary ploughman." Ploughmen as a rule take a very great interest in their work, and vie with each other in the quality and finish of their ploughing (especially those in the northern part of the kingdom; I know but little of the southern ploughman).

Again he states (presuming he was going on a botanical expedition): "On the strength that my unbotanical friends would discover that a place of refreshment was on the way, I often persuaded one or two of them to accompany me to some bog or fern den, five or six miles distant." Now, if "Digitalis" had had to do a hard day's work he would not have felt inclined to take a five or six miles' journey, which means twelve miles—ten at the least—with three hours' good walking, and leaving home at six o'clock, what time had he to collect specimens? In many gardens during the summer months there is so much work on hand that there has to be an hour or two of overtime given, especially where there is a quantity of Grape thinning to do. Many of the men would rather thin in the evening than remain under a broiling sun during the day. For my own part I preferred evening or early morning. I have been at work at 4, sometimes 3.30 a.m., when there was a pressure of work, and did not want to make a long journey (had I any leisure) in the evening. But perhaps it was the "refreshment" that was the attraction for "Digitalis," and the botany was but a cloak!

THE BOTHY SYSTEM.

Another point he touches on is the bothy and those who live therein. He blames the bothy for young gardeners' want of interest in botany. He goes on to say "From careful observation I fear much of this apathy is due to a happy-go-lucky form of indolence greatly fostered by the extremely unnatural system of bothying, or housing men as at present practised. This system, as is well known, is inimical to all that is refined in man's nature. The restraints of home life and other society are rent asunder, and the man stands as near the aboriginal specimen as an enlightened twentieth century civilisation can well afford to permit." What a sweeping assertion to make! I fancy "Digitalis" himself must be a very primitive specimen—a veritable "old woman"—and daresay that if ever he has tried bothy life his companions found him such an old "molly-coddle," and gave him such a sitting-on as forced him to once more return to his "mother's apron-strings," or lodgings.

How many gardeners are there in the present day who would vote for bothy instead of lodgings? How many places are there of any pretension where there is no bothy? And where did the majority of the best gardeners of the present day live, when young, but in the bothy? Are they to be termed, by "Digitalis," as uncivilised and of passive intellect? He must

take care he has not stirred up a "hornet's nest," and I hope that more able pens may provide a more effectual overhauling than that of—AN OLD BOTHY BOY (Sussex).

Apple, Charles Ross: A Query.

I shall be very much obliged if any amateur will tell me: (1) Is this a first-rate dessert Apple? (2) Is it a good bearer? and (3) a good grower? We have heard tremendous laudations of it, just as we did about Allington Pippin, which some said was equal to Cox's Orange. Allington is of good quality (for a short time), a good grower, and abundant bearer; but you might as well compare a Swede Turnip with a Pineapple.—C. C. ELLISON, Lincolnshire.

A Gardener and his Employer.

A young head gardener writes asking our advice in a matter concerning himself and his employer—a lady. The latter has asked the gardener to teach her how to prune Roses—a very commendable and most natural request—but the gardener, though agreeing to act as tutor, thinks that if the lady is going to do the pruning (there are 500 plants) he, nor any experienced gardener, could not take an interest in the garden, and such work on the lady's part "is taking away a gardener's place." This all depends. If the lady still regards her gardener as superintendent of the garden, and not merely as a labourer, to do work that she cannot attempt, there is nothing lost. In fact, there is a gain, for by getting the employer interested in the real work that is done there is far more likelihood of the garden being developed and having money spent on it than if only a passing regard were paid. In these days, employers, both ladies and gentlemen, frequently take an active part in the conduct of their gardens, and so far as we have seen, the gardener has been strengthened in his position, for depend upon it, the amateur will not go far or do much without a councillor. On the other hand, there are employers who do not properly respect their gardeners, and in these cases the latter have trying times. It ought, however, to be the duty of the employed person to render all the assistance and encouragement he can, being courteous, frank, mannerly, not servile certainly; and by his own superiority in the garden we think there will be little fear of his place being "taken away."

Raspberry Cultivation in Scotland.

The following letter recently appeared in the "Scotsman":—
There have been a number of acres of Raspberries planted in and around Blairgowrie during the autumn and this winter, and the question has often been asked, "What is the probable outlay to plant an acre of Raspberries?" I notice in the papers that Mr. J. M. Hodge, solicitor, Blairgowrie, was lecturing in Glasgow last week. He says "an outlay of over £20." This, I think, is very vague and misleading to anyone venturing in the scheme; who, with small capital at command, would find that £20 did not go very far towards planting and maintaining an acre of Raspberries before getting any returns. During the last eight years we have planted forty acres on this farm, and the following statistics may interest some of your readers:

Rent for three years at £6 per acre (Mr. Hodge's own figures)	£18	0	0
Ploughing, preparing, and drilling	1	10	0
20 tons of manure carted into the field	13	10	0
Carting and spreading manure	1	5	0
10,000 canes at £1 per 1000 (this year they are £2)	10	0	0
Planting canes	1	0	0
Posts required for a square acre	4	0	0
Wire required for a square acre (4 cwts.)	4	10	0
Weeding, pruning, tying, &c., for three seasons	15	0	0
Forty barrels at 5s. each	10	0	0
	£78	15	0

This will bring up the outlay to £78 15s., not including implements, baskets, string, weighing machine, &c., which are all necessary before the crop can be gathered. The second season the bushes may yield two or three cwts, giving a small return. After all this outlay and trouble we expect to gather something like three tons in the autumn of the third year; and should the grower be a judicious salesman and fortunate enough to have a market similar to the year 1903, which opened at £30 and rose to the phenomenal figure of £43, he would ensure a profit of, say, £25. There is, perhaps, no commodity of trade which is subject to such fluctuations in price as fruit. Raspberries were sold in the midseason of 1902 in Glasgow market at £14 per ton. The writer is, as every resident ought to be, anxious to do his little best to promote the well-being of the district; if his practical experience, extending over a long period of years, is of any service to prospective fruit-growers, he will be happy to give them any information he possesses in fruit cultivation generally.—G. R. BEALE, Manor Farm, Blairgowrie, February 2, 1904.

Entomological Notes.

The Wood Leopard Moth.

Writing from Crawley, a correspondent observes: "I am sending you a small piece of Apple branch with a grub or maggot of some kind within. Will you kindly inform me in the columns of the *Journal of Horticulture* what it is? I should also be glad if you can give me a remedy for it.—FRUIT TREE PEST."

The grub is the caterpillar of the Wood Leopard Moth, which occurs frequently and often in considerable numbers, as, for instance, in Greenwich Park two years ago. We gave a figure



THE WOOD LEOPARD MOTH.

of the moth, together with the following notes, a year ago, but they may usefully be reprinted: The caterpillars of this moth (*Zeuzera aesculi*) burrow into the wood of different kinds of trees, tunnelling it, and so effecting injury. They are particularly destructive in orchards

of Apples and Pears. The caterpillars pupate close to the entrance of the tunnels. The pupa forces its way partly out of the wood previous to the moth emerging. The moth (of which a life-size figure of a female is given) is seen from the end of June until August. The body and wings are greyish, with dark spots on the wings. The caterpillars live for two years and pupate in May. They are 2in to 3in in length, yellowish or brown in colour, and make tunnels in the stems of branches of $\frac{1}{4}$ in in diameter. The eggs are oval orange bodies, laid on the stems and branches of trees. The remedies are the cutting off and burning infested branches in winter, placing small lumps of cyanide of potassium (a deadly poison) in the holes, and closing the latter with clay. This kills the caterpillars. For fuller information we would refer to the Board of Agriculture Leaflet, No. 60.

Employers and Employés.

Members of the Devon and Exeter Gardeners' Association followed with keen interest a paper read by Mr. Mackay, of the Royal Nurseries, at the recent meeting of that society, on the relationship that should exist between employers and employés. Mr. Mackay considered that the first aim of an employer of labour of any kind should be to gain the esteem and confidence of those whom he employed. That, he said, could only be attained by his assuming towards them a firm but easy attitude, one which they might at once respect, but not fear, for fear was the mother of artfulness and cunning. Many employers acted on the principle that kindly feeling bred contempt and carelessness. In many cases that, upon the surface, did appear so, but on closer examination it would be found otherwise. Good and intelligent men knew rather how to appreciate such kindness. The attitude assumed by the employer would be copied by the employé. The action of an employer had much to do with the making of his men and keeping them honest and content.

Mr. Mackay held that the employers of to-day had to thank those of former generations for the combinations and strikes of workmen and their evil consequences. Had the old masters lent a kindly and considerate ear to the grievances of their men and met them in temperate conference with a view to their alleviation, strikes and combines would have been unknown, and they would not, in these days, have had to suffer, as they all did, both masters and men, from the evil of the unionist and the agitator. Speaking of the conduct of the employé, he said that the man who was respectful and courteous to his employer had at all times a pleasant way of meeting him, and did much to aid himself in gaining a position of favour. The morose and ill-tempered man would do equally as much to repel the approaches of his master and his good feelings towards him.

The greatest possible good for his employer should be the man's first and last aim during the working hours of the day. The interests of employer and employé were identical. Killing time and making a job last much longer than it otherwise would, was one of the gravest errors of the British workman. In some instances, unfortunately, it was approved of and encouraged by the employer. A workman should also study his employer's wishes and desires, remembering that he who paid the piper had a right to call the tune. The employé should study his employer's temperament, and try to please him by a close study of all his fads and fancies. It was only by a close study of each other by both master and man that a kindly relation and good-fellowship could exist between them.

Continuing, the lecturer asserted that an employer could not possibly expect to get the whole of a man's time. Mind and body required other recreation besides hard work. Unless they got it the men would become dissatisfied, discontented, and unhappy. In every engagement of a gardener or garden labourer there should be an understanding as to notice. A head gardener should have a month's notice, and the under man a week. Where a man desired to leave in order to improve himself, Mr. Mackay said he would like to see a better understanding between the parties than that which at present existed. It was generally the rule for the employer to get rid of a man immediately he spoke of improvement or wished to better himself.

Gadding and Gathering.

The Greenhouse at Kew.

The following plants were in flower in the greenhouse, Royal Gardens, Kew, on February 25:—Cinerarias, florists' and stellate; *Wistaria chinensis*, and its white variety; "Dutch" Hyacinths in many colours, as well as such other bulbous subjects as *Veltheimia viridifolia*, Paper-white Narcissus, N. Empress (twelve flowers in a 6in pot), N. Tazetta Grand Monarque, N. Barri Orphée; white Duc Van Thol Tulip; and scarlet ditto; also the varieties Thomas Moore and Ophir d'Or. Star and florists' Primulas, including in the latter such named sorts as Sutton's Duchess (very well grown), and Giant Blue and Giant Pink, and Red Lady (a gem). It is worthy of note that some plants of Star White have been grown on as two-year-old plants, being now in 8in pots and forming massive, bushy plants, some 2ft through, and as deep, smothered with flowers. This particular variety is palm-leaved, with dark stems; it is the most popular of all.

While referring to the Primulas it is interesting and novel to see them planted out, and beneath shrubs, too! But the plants here make a fair showing, dotted lightly as they are over the surface of a peaty, sandy bed containing Acacias; while *Lomaria gibba* and *Aspidium angulare* also assist the general effect.

Carnations are represented together with *Jacobinia Ghiesbreghtiana*, *Chorizema elegans*, *Primula kewensis* (hybrid), *Azalea sinensis* vars., *A. indica* vars., *Prunus cerasifera atropurpurea*, *Senecio Petasites* (large, single-stemmed plants with yellow flowers), *Rhododendrons præcox*, *Cytisus fragrans*, *Peristrophe speciosa*, *Cheiranthus kewensis* (a hybrid Wallflower). It is in 8in pots, forming shapely round bushes quite 3ft high, and nearly the same in diameter. The plants are studded with short inflorescences of golden-chestnut flowers, going off to bronze-purple. This plant received an award of merit recently when staged by Messrs. Veitch and Sons.

Jasminum primulinum is here and making good growth. Cannas are in bloom; also *Spiræa Van Houtte*, *Sparmannia africana*, Callas, *Solanum capsicastrum* (well berried), *Hibbertia dentata* (flowering on the roof), Oranges (*Citrus aurantium*), and *Eupatorium petiolare*. This Mexican species was certificated at the last meeting of the Royal Horticultural Society when staged by Messrs. Cannell and Sons. The plant here is over 6ft high, occupying a place on the south central bed; but it is in pots.

Clivia miniata vars. and small Japanese Acers (*A. palmatum*, &c.) freshen the stages, and *Leptospermum scoparium* is just opening its starry white flowers. *Eupatorium riparium*, and tiny plants of *Coleus thyrsoideus* in 3in and 4in pots, the single stems bearing terminal panicles, furnish a pretty piece of colour. Kew is ever trying new ways, and generally manages to make a very good lead. One must not omit the quaintly beautiful *Grevillea Thelmanniana* which is most creditably staged here, and is now nicely in flower. *Iris reticulata* is also found in pots.

Rising from amongst a varied batch of specially fine Cyclamens on a side stage are varieties of healthy Clematis supported by a single slender stake. *Pteris*, *Cyperus alternifolius*, and small plants of *Kentia Sanderiana* are used with the flowering plants.

Kennedyia prostrata Marryatæ, *Cestrum* (or *Habrothamnus*) *elegans*, and *Tibouchina macrantha* are flowering as pillar and roof plants. *Prunus japonica* (double-flowered white) is very showy mixed with *Peristrophe* and *Acacia armata undulata*, with Primulas underneath. The Camellias, particularly *C. reticulata*, make a brilliant display. *Agapetes buxifolia* is also here, and is planted out. *Magnolia stellata*, *Prunus persica* (double flowered rose variety), *Pyrus floribunda*, *Loropetalum chinensis*, *Acacia obliqua*, Epacrises in many varieties, *Begonia* Mrs. Leopold de Rothschild (Lorraine type), Lily of the Valley, and lastly, fifteen pots of *Hippeastrums* bearing scapes of three or four really handsome flowers, combine to furnish a very creditable display. An oddity included in the house is *Amorphophallus Rivieri*, one yard high, with dark purple spathes and spadix, and, of course, without foliage. There are two plants, each in a large pot.

Hardy Plant Notes.

In thinking of the many flowers which combine their beauties in the effort to brighten our gardens we cannot but think what a part is played among them by the hardy composites from the New World. This is especially the case in summer and late autumn, when we have the golden blooms of the Sunflowers and allied plants, and the contrasting and harmonising flowers of the Asters. Among the golden flowers a high place is undoubtedly due to the Heleniums.

In the cultivation of the Heleniums as a whole, nowhere do we see such fine blooms as those which are gathered from plants growing in a moist and rather swampy soil, where they never suffer from drought in the hottest day of the year, and where they present a contrast to the poor specimens we can only have in the dry and drought-injured border of sandy soil. In these moist positions the Helenium attains its full stature, gives its flowers at their finest, and produces healthy and vigorous foliage which it is a delight to see.

Of the species, some score or more in number, known in North America, there are only a few in cultivation or known to be of sufficient value for our gardens. Of these perhaps the best are *H. autumnale* and *H. Bolanderi*. The first is variable in height, growing from 2ft to 6ft high, and is always pleasing when in flower, with its bright green oblong, lanceolate leaves, and its bright yellow ray petals surrounding the globose golden disc, and raised on stout stems. There are several varieties of this species, under the name of *H. pumilum*, but generally looked upon in gardens as a Helenium, some pubescent and some glabrous; while the form known as *pumilum*, has given a fine variety, called *H. pumilum magnificum*, one of the best of our summer and autumn flowers. *H. a. superbum* is a very fine form, and there are others of great beauty.

In *H. nudiflorum* we have a very variable species, and nowadays we find several varieties offered under various names. At home it varies from one to three feet high, but in this country it may grow even taller. Its colour varies from yellow, yellow with a brown base, to brown, and it would seem to be to this species that we owe the plant sold as *H. striatum* or *H. grandicephalum striatum* a distinct looking thing, with markings of brown and yellow, which caused great interest when it was first shown some years ago. In *Helenium Bolanderi* we have another good garden plant, varying in height less than those already named, but being generally from one to two feet high. It comes into bloom early, and is noticeable from its dark brown disc contrasting so well with its golden rays. It seems to do with less moisture than some of the others. In *H. Hoopesii* we have another of considerable beauty. It grows about two feet high, and has fine masses of yellow flowers. Of commanding appearance, growing about four feet high, is *H. Bigelovi*, which has fine yellow flowers with a brown disc, and of considerable effect in the border.

It must be said that there is at present much confusion in the nomenclature of the genus, especially upon the question of the right of certain flowers to specific rank. Some consider *H. pumilum* a species, and *H. grandiflorum* of Nuttall is referred by authorities to *H. autumnale*, to which also one would place the plant sold as *H. grandicephalum*, a really fine flower. Whether authorities agree or not upon these questions, the leading thing for us gardeners is to be able to procure the plant we require when we want it. This is not so difficult as with some flowers, but those who desire to grow Heleniums may rest satisfied that none of those named are unworthy of being planted in their gardens. All are beautiful and all are valuable. Their cultivation in good soil presents no difficulty; they are easily propagated by seeds or division; and whether planted in autumn or spring are

almost certain to do well. Few hardy flowers can be recommended with more confidence than these North American Heleniums.—SOLWAY FIRTH.

Hybrid Potentillas.

Hybrid Potentillas sold under name, and which are only dwarf when allowed to trail upon the surface unsupported by a stake, or the yellow *P. verna*; the pretty *P. caulescens*, with white blooms; the neat little *P. minima*, a miniature *P. aurea*; or the pretty *P. nivea*, and a number of others which to detail would involve the occupation of too much space. Practically all are attractive and easily cultivated in common soil. They are very easily raised from seeds, sown preferably in early spring under glass, but the greater number are also increased by means of division at the roots. Combined with other flowers of similar or diverse character, they are very pleasing in their season.—S. ARNOTT, Carsethorn by Dumfries, N.B.

Salvia gesneræflora.

The wood-engraving herewith given will serve to illustrate the descriptive remarks made in our issue for February 18, page 142, regarding this species. For winter and spring decoration it is commendable. The flowers are scarlet.



Salvia gesneræflora.

Societies.

R.H.S. Scientific Committee, February 23rd.

Present: Dr. M. T. Masters, F.R.S. (in the chair); Messrs. Hennessey, Chittenden, Odell, Baker, Veitch, Michael, Saunders, Bowles, Massee, Douglas, and Holmes; Dr. Cooke; Revs. W. Wilks and G. Henslow, Hon. Sec.

Coloured photos.—Mr. Hickley exhibited some more miscellaneous transparent photos of vases, bouquets, &c., by his new process. A vote of thanks was accorded to him.

Cyclamen malformed.—Mr. Odell showed specimens in which petioles and peduncles were fused together, but not fasciated. It was remarkable in the condition having been persistent for six years on the same plant.

Silver Fir diseased.—Mr. Massee showed a branch badly attacked by *Æcidium elatinum*, and observed that the disease known as the Witches' Broom, caused by *Phytophthora nidis*, upon Silver Firs, is spreading greatly in the neighbourhood of Kew. The uredo form is known as *Melampsora cerastei*, as it attacks members of the *Caryophyllaceæ*.

Cypripedium malformed.—Dr. Masters described an unusual form of a blossom, which had four sepals, one column, with two stamens, but a three-lobed stigma. It was thus a case of increased numbers of parts, or an attempt at forming a multifold flower.

Cineraria, supposed disease.—Dr. Cooke reported upon some leaves sent by Mr. Vose of S. Norwood:—"I have received during the past week leaves of *Cineraria* from a Fellow of the society who suspected them to be attacked by some mould. I examined and reported on these to the effect that I could find no parasitic mould upon the leaves; and although I had examined the tomentum of the under surface as completely as it seemed possible to examine such a substance, I could find no mycelium mixed with the filaments of the tomentum, and no fragments of fungus hyphae or fungus spores. Subsequent examination of other leaves, which had brownish and dead spots near the margin, furnished from these spots a few delicate fungus hyphae with a few spores or conidia, evidently belonging to some species of *Cladosporium*. But as *Cladosporium* is so commonly found as a saprophyte on all kinds of dead vegetable matter, and so very rarely as a parasite, and in this instance occurred only upon dead spots, I came at once to the conclusion that it was not connected with any disease. However, I ventured to state that I should never be surprised to find some species of *Oidium*, with its chains of conidia, on leaves of *Cineraria* as well as on other composite plants."

The failure of Beans in houses.—Mr. Baker reported as follows upon this matter brought before the last meeting: "Mr. Horseley writes that the plants and the unsown seed have been destroyed, and the earth thrown away. I have therefore to form an opinion from the long record. Assuming this to be correct, there is very little, if any, doubt that the failures were due to, first and chiefly, unbalanced sunlight and fire heat. The period of failure was the end of October to January, an unusually dull, sunless time this season, even for these months, and it seems no allowance was made. This has been a fruitful source of trouble this season elsewhere, and should teach the importance of regulating the heat by the sunlight available. Secondly, the soil was chiefly humus and too light, and almost certainly very deficient in available lime, phosphate, and potash."

Bristol Gardeners'.

A well attended meeting of the Bristol and District Gardeners' Mutual Improvement Association was held at St. John's Rooms, on Thursday evening last, when Mr. J. Coutts, representative of the Exeter Gardeners' Society, delivered an exhaustive lecture on "Greenhouse Hardwooded Plants." Mr. E. Poole, F.R.H.S., occupied the chair, and on behalf of the Bristol gardeners gave Mr. Coutts a hearty welcome.

[A paper on this subject from Mr. Coutts was published in several issues of the *Journal of Horticulture* for April and May, 1901.—Ed.]

Prizes for table decorations were awarded to (1st) Mr. Thoday, gardener to Mr. N. C. Dobson; and (2nd) to Mr. J. T. Curtis, gardener to Mr. W. Howell Davis. A special certificate of merit was recommended for Mr. A. Hall (gardener, Mr. Ware) for two beautiful pots of *Freesias*. The next lecture will be held on March 17, when Mr. Myers will lecture on "Ancient and Modern Gardens," with limelight views.

Spekefield Amateur Gardeners'.

Under the auspices of the above society a most instructive and interesting course of six lectures in the Baptist Hall, Spekefield, has just concluded. Mr. John Stoney, of Aigburth, was the lecturer. The course included "Soils and Manures," "Tomatoes, Potatoes, &c.," "Chrysanthemums for Large Blooms," "Vegetables," "Flowers for August," and some common "Diseases of Plants." Mr. Stoney illustrated his remarks by a series of diagrams, lantern slides, and specimens. The lectures on each occasion were highly appreciated and well attended. Many questions on technical points were asked, and

fully answered by the lecturer, who made it a point of giving his hearers a thorough knowledge of all the practical details combined with the general principles underlying practice. It is felt that these lectures have been a distinct gain to the society. A very pleasing duty devolved upon the chairman at the closing lecture in the presentation of a very handsome walkingstick to Mr. Stoney for his valuable services.—W.

Scottish Horticultural.

The monthly meeting was held in Dowell's Rooms, Edinburgh, on Tuesday evening, the 1st inst., and was very largely attended, Mr. McHattie, president, in the chair. After the usual formal business, Mr. Brotherston, The Gardens, Tynninghame, read a paper on "Scottish Plant Names," and for more than half an hour highly delighted the audience, tracing in a most interesting manner the popular names in Scotland for many of our finest plants and trees, showing that love and necromancy were largely the roots of plant names, and that in different parts of the country different names were applied to the same plants.

Mr. Brotherston also quoted from the old Scottish poets many associations connected with plant lore, and how various plants came to be associated with various classes or clans of the people. A most interesting discussion followed, in which many of the ideas in the paper were amplified. A most hearty vote of thanks was awarded to Mr. Brotherston. Interesting exhibits were on the table. Beautiful orchids from Mr. Nichol, Rossie Gardens; Carnations as imported from France from Mr. Fortune; a number of beautiful Hellebores, Violets, orchids, &c., from Mr. Brotherston; Daffodils, Anemones, &c., from Mr. Todd, Shandwick Place. A vote of thanks to the chairman brought the meeting to a close.

Cardiff: Birds.

A meeting of the Cardiff Gardeners' Association was held at the Grand Hotel on Tuesday evening, February 23, when Mr. H. R. Farmer presided over a large muster of members. Mr. J. Mountney, naturalist and preserver to the Cardiff and other museums, gave a delightful and interesting lecture, entitled "Our Summer Visitors," illustrated with over thirty specimens, such as the swift, martin, cuckoo, nightingale, and nightjar.

The lecturer, in passing the specimens round singly, gave a brief history of each one, and explaining at the same time, apart from their song, their particular value to the gardener. Regarding the destruction of insect pests, he said he was also alive to the fact that they often caused great vexations to the gardener during the fruit season. Though the losses were considered great at times, it was an open fact that were there no birds to keep insect life under, complete destruction among plant life was bound to follow unless fought against by artificial means.

A variety of questions were put to the lecturer during a long and splendid discussion, and the unanimous opinion was that the sparrow ought to be exterminated. The best thanks of the association were accorded Mr. Mountney for his lecture, which was the first of its kind that had ever been brought before the members.—J. J.

Hull: The Tilth of the Garden.

A meeting of the Hull and District Horticultural was held in the Imperial Hotel on Tuesday, February 23, Mr. Toyne acting as chairman, and Mr. McIntosh, of York, being the essayist. The subject of this gentleman's remarks was "The Tilth of the Garden." The essay was a skilfully compressed compendium of a large subject, and no attempt at further abridgement could be successful in the bounds of this report. Needless to say, the hints coming from a cultivator of long experience were eagerly listened to. Mr. McIntosh favoured deep cultivation down to 2½ft or even 3ft, not only to afford root room, but to admit of the free passage of the necessary elements—air and water.

With regard to manuring, the essayist explained his method of disposing of garden rubbish, humorously terming it the "dumping system." A trench 4ft wide and 2ft deep was taken out at the end of a plot, and all weeds, vegetable refuse, and other rubbish (barring sticks and ineradicable weeds) were "dumped" into it; when full, the soil taken out at first was returned and another trench of similar dimensions prepared and filled in like manner, so that in the course of time a rich substratum of vegetable matter would be formed throughout the plot. In the ordinary method of trenching the humus would be brought to the surface, and could be thoroughly incorporated in the other soil, thus doing away with the necessity of manurial additions for years, an inch spreading of lime being given to obviate sourness. The meeting terminated by according a hearty vote of thanks to Mr. McIntosh.—W. R.

* * We regret to be compelled to hold over reports of the Feltham Paignton, Ipswich, and Reading gardeners' societies.—Ed.



Fruit Forcing.

PEACHES AND NECTARINES: EARLIEST HOUSE.—Now the fruit is stoning the temperature must be kept as equable as possible. Too high a temperature, especially at night, is not favourable to the process, and sudden fluctuations often cause the fruit to drop wholesale. The temperature should be continued at 60deg to 65deg at night in mild weather, 55deg to 60deg when severe; 60deg to 65deg on cold, dull days; 65deg to 70deg when mild but sunless; 70deg to 75deg with gleams of sun, ventilating early and freely under favourable climatic conditions. Thinning the fruit must be seen to, not allowing twice as many fruits to stone as are to be left for the crop, but a few more than the required number should be retained to meet casualties in stoning. One fruit to every square foot of trellis covered by the trees is a capital guide. Small-fruited varieties may have the fruit left a little closer, and vigorous trees will carry more than weakly trees. Overcropping, however, must be strictly avoided. Nectarines require the same space as Peaches to have fine fruit.

SECURE ALL THE SHOOTS to the trellis as they advance in growth, stopping any that are likely to exceed 12in to 15in at those lengths, and if the pinching results in laterals stop them at the first leaf. Shoots retained to attract the sap to the fruit should be stopped to one leaf. Extensions must be trained in their full length, pinching laterals to one joint as made. Syringe the trees in the morning and afternoon when the days are fine, but damping the paths and borders will be sufficient in dull weather, with an occasional syringing applied with force to keep red spider under; but care should be taken not to tatter the leaves. If the pest gain a footing extirpate it by the prompt application of an insecticide, or a solution of petroleum emulsion, carefully following the directions for use. Inside borders must be kept duly supplied with water or liquid manure in a tepid state, but avoid over-stimulation whilst the fruit is stoning.

SECOND EARLY HOUSE.—Disbudding must be proceeded with gradually, and the successional bearing shoots should be laid in as soon as they are sufficiently advanced in growth. Thinning the fruit must be attended to as soon as the remains of the flowers are cast. Remove all twin fruit, the smallest, that on the under side of the branches, and the badly placed, leaving three on a branch of 12in length, to be afterwards reduced to two on a strong and one on a weak branch when the size of marbles. Only one fruit, as a rule, should be left on each bearing shoot.

SUCCESSION HOUSES.—Trees now in bloom require a free circulation of air, as such will keep the atmosphere buoyant with sufficient fire heat to prevent sudden depressions of temperature, maintaining 50deg at night, or a few degrees less on cold nights. A temperature of 50deg to 55deg will be suitable in the daytime, advancing to 60deg to 65deg from sun heat, with free ventilation. Shake the trellis or trees occasionally to distribute the pollen, or preferably, pass a camel's-hair brush or feather over the flowers that have ripe pollen once a day, and give extra attention to the shy-setting varieties by conveying pollen from others that produce it in abundance, as, for instance, Royal George and Stirling Castle Peaches, also Elruge Nectarine. Keep the paths well damped on fine days, and be more sparing of water when the weather is dull and cold.

LATE HOUSES.—The roof lights need not be put on until the buds show colour, as the silvery integuments that envelop the floral organs afford protection, but the blossom is not safe after showing colour. Trees under fixed roofs are more forward, the buds being in various degrees of expansion.—G. A., St. Albans, Herts.

Kitchen Garden.

MAKING HOTBEDS FOR CUCUMBERS AND MELONS.—Hotbeds should now be made for Cucumbers and Melons. See that the material is thoroughly prepared as previously advised. It should be thoroughly mixed and shaken to pieces, or heat will be unequal. The material should be trodden as firmly as possible in order to prevent undue shrinkage. As soon as the heat becomes steady, the Cucumber may be planted; the Melons, however, may stay a fortnight longer, by which time the days will have lengthened and the sun have gained power. Throw up a ridge of turfy loam along the centre of the bed, on which to plant the plants. This should be done some days before the plants are planted, in order for the soil to become warmed.

The plants should be well prepared before they are planted in frames. No greater mistake could be well made than to take the plants direct from a hot propagating house to the frames. They should be first placed in a house near the roof glass, where the temperature is somewhat lower than in the propagating pit or house. This will harden them somewhat.

PEAS.—A successional sowing of Peas should now be made. Those 3ft high are the best for this sowing. The ground should be thoroughly prepared. The seed should be a little thicker than usual. The soil, being so cold after so much rain, many of the seeds with weak germs may fail.

AUTUMN-SOWN ONIONS should now be planted out on dry, well-prepared soil. See that they are planted firmly to prevent the wind twisting them out of the soil.

NEW BEDS OF ASPARAGUS may now be made. The old way of digging out the soil and filling in with a great many different kinds of composts and faggots of wood is not now practised. First-rate Asparagus is obtainable from beds made by trenching the soil deeply and thoroughly manuring the soil. The rows should be 18in apart, and the plants 1ft from plant to plant. See that the roots are spread out carefully in broad holes or trenches. Two-year-old plants are the best for the purpose.

LEeks.—The seeds should now be sown. Sow on a fine, sunny day. The seeds should be coated with red lead.

NEW BEDS OF SEAKALE should now be made. If the roots were prepared early in the new year they will be now in good condition for planting. The ground should be deeply worked and enriched for Seakale. If it is intended to force the plants outside they must be planted in clumps. Place three good sets in a clump; each set should be 10in from its neighbour, and the clumps should be 4ft apart. This will give ample room for manure to be placed between the pots for forcing. Seed may also now be sown to provide plants for planting next year.

POTATOES.—A good breadth of early kinds should now be planted. It will be well to select a sheltered border where frost and keen winds will not be so likely to injure the plants in May.—A. T., Cirencester.

The Flower Garden.

HERBACEOUS PERENNIALS.—Borders in which strong-growing clumps of Phloxes, Helianthus, Michaelmas Daisies, hardy Chrysanthemums, Delphiniums, Pinks, Pæonies, and similar subjects have been established for some years will require some attention in improving the soil, especially where it is light, poor, and shallow. The present is a good time to deal with perennials affording an opportunity to lift, divide, and replant after thorough trenching and digging of the ground. Work in material which will prove of service in enriching the ground and encouraging a healthy, vigorous growth. Leaf soil, loam, and decomposed manure with wood ashes and vegetable matter will prove to be suitable material. The oldest and exhausted parts of the clumps may be discarded when dividing them up, using only the newer and vigorous portions, which will be of ample size for planting. Shorten also long, straggling roots. In the event of the ground being stiff and wet, the result of rain following closely on digging, use some light, dry material round the roots when planting, especially if any small new plants are introduced, this encouraging them to make a free start.

LILIUMS.—Groups of these interesting flowering bulbs make a conspicuous display during their season of blooming in summer, and the plants increase in effectiveness year by year through the bulbs multiplying. When inserting the bulbs the soil should not be too wet. A layer of dry, sandy soil is best to employ for placing the bulbs upon, surrounding them also with material of the same kind. Plant at a depth of 4in to 6in, the latter depth in light soil. All may be placed 6in apart and in groups of three to twelve bulbs. Mark the positions where planting, either with sticks or labels, recording the names of varieties. Suitable positions may be found for planting near the shelter of shrubs, though groups must not be so arranged where shrubs or trees will affect the growth detrimentally. Liliams do remarkably well among low-growing American shrubs, the soil used for these being of a peaty character, or special borders may be prepared for them. A good selection of varieties to plant are *L. tigrinum*, *L. lancifolium*, *L. croceum*, *L. Martagon*, *L. chalcedonicum*, *L. japonicum* Browni, *L. Thunbergianum*, and *L. auratum*.

RAISING PLANTS FOR SUMMER DISPLAY.—Among the plants it is desirable to raise as early as possible now for summer flowering are Ageratums, Celosias, Carnations, Dahlias (single), Mimulus, Petunias, Lobelias, Verbenas, and Violas. Sow in pans or boxes filled with light soil placed under glass in slight heat to encourage quick and strong germination, and help on the early growth of the seedlings.—E. D. S., Gravesend.

THE BEE-KEEPER.

The Stewarton Hive.

The W.B.C. hive is preferable to the Stewarton for manipulation, interchange of frames, for the production of marketable sections, and because it possesses all, and more than all, the properties claimed for the latter, which for many purposes is a sealed book; and with regard to the increased harvests obtained from them, this is not so much dependent upon the hive but either the bee-keeper or locality, which is evidenced by the fact that a bar-frame hive has yielded 334lb of honey in one season in a district somewhat approaching that where the record takes previously mentioned were obtained, *i.e.*, having triple seasons, fruit, clover, and heather.

(2) The fact that a colony in a Stewarton has stored surplus while those in bar-frames had to be fed at the time is no proof of the hive's superiority. Bees will store honey in almost any receptacle if properly managed, but the bar-frame hive has a decided advantage over any other system. This apparent freak of the bees was no doubt accounted for by the colony having an old queen, which would necessarily result in a weak colony of discouraged bees, seeing that the workers derive their energy from the queen. Examples of this kind are not wanting in the apiaries where queens are not systematically replaced. Stocks in the same village will average 100lb per colony year after year, while the next-door neighbour will be very well satisfied with fifty per stock.

In comparing the results obtained from different kinds of hives, it would hardly be fair to expect a bar-frame headed by such decrepit queens to store the same quantity of honey as the numerous progeny of a young prolific queen in a Stewarton, or *vice versa*. Many Scots apiarists possessing both kinds of hives on the same stands admit that they do not think there is much difference in the yields. Periodical differences will occur owing to the respective merits of queens, bee-keeper, or conditions.

It should also be remembered that a Stewarton requires two or three swarms united to populate it, and as the bulk of the bees which compose a swarm are field workers, and there is no brood to feed, more are liberated for gathering honey, and less is consumed for brood production. Such a doubly powerful force therefore ought to store an unusual quantity.

As an example of what may be accomplished with bar-frames, personal observation and assistance in making an artificial swarm in the apiary of a friend resulted in a take of 120lb of honey in less than three weeks.

(3) The powers of contraction and expansion, the air current argument, and outer casing protection are equally applicable to the W.B.C. hive. As a matter of fact, the Stewarton is not so gradually expansible as the bar-frame, as with the former nothing can be given but complete brood chambers, whereas single frames may be allowed in the bar-frame hive, or a shallow super if desired.

In the management of the Stewarton stress is always laid upon the fact that if the bees can be encouraged to work well in the supers and are given plenty of room above and below, they will seldom attempt to swarm, but if the weather is unsettled and the bees are only partially employed, they are apt to swarm under any conditions. Swarming is more the result of mismanagement, or, what is far more important in its consequences, to instinct transmitted through the queen, which is sometimes the case when reared under the swarming impulse year after year. This aspect of swarming was brought home forcibly in a well known apiary where the method of re-queening was by natural swarming.

One colony swarmed no less than six times, and absolutely refused to work in the supers steadily at all. As a matter of course, the bee-keeper has since been compelled to obtain good energetic stock with non-swarming instincts, which will not be allowed to degenerate by swarming. A good queen will not permit the bees to store honey in the brood chamber, but will control the brood nest entirely for ovipositing, and all the surplus is stored above. Swarming then resolves itself into the apiarist's ability to keep all his bees at work. The more bees working the greater the result in honey, and the best swarm preventer is a double brood chamber, or its equivalent.

(4) Similar conditions with regard to the escape of heat in the summer and moisture in the winter can be obtained in the W.B.C., but there is no doubt that the octagon shape has a great advantage over the square or oblong for wintering. The nearest approach to these conditions in the bar-frame may be arranged by reducing the brood chamber to eight bars, which must be well packed with bees for wintering. It is, therefore, evident that the gist of the matter lies in having strong stocks, otherwise the brood nest must be contracted to the space actually occupied to get the same results as the Stewarton.

(5) If intelligently carried out, the same plan of uniting can also be adopted with W.B.C., and in the latter the interchange of bars, &c., is still more complete.

(6) If it is noted in what particulars the hives differ, there is a very slight difference in their capabilities for wintering providing they are in the hands of able bee-keepers. It is the compactness of the skep and Stewarton which makes them so successful; the shape of the hive is immaterial. What more proof is required than to know that four-frame nucleate wintered regularly by contraction, &c. The contention that brood combs are extended downwards more readily than laterally is questionable. A weak colony in a Stewarton hive would have to maintain the temperature of the vacant space unoccupied by the bees, and many such are entirely lost.

Now only observe the advantage of being able to adapt the hive to the size of the cluster. The eggs are laid from corner to corner of the bars they are forced to occupy, and they rapidly increase in numbers. There is something positively agreeable to the apiarist in being able to build up such a colony.

(7) The method of supering without queen excluder is an advantage, and might be followed beneficially. At the beginning of the season unless the bee-keeper exercises discretion in giving supers, he will check the progress of a colony for some time by giving too much space, and thereby reducing the temperature of the brood nest, but the Stewarton plan may be modified to suit the frame hive by placing a layer of ticking or calico to cover all the bars but the two outer ones. This will help to retain the heat of the cluster until stress of circumstances forces the workers to take possession of the super, and if the apiarist is afraid of swarming he can give additional breeding space in the same way as the Stewarton by a shallow super under the brood chamber. Experiments and observation are the great secrets of success, and the benefits derived from apiculture go hand in hand with same.—E. E., Sandbach.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

BUDS ON PEACH SHOOTS DECAYING (J. C.).—The buds are destroyed for the most part by some substance that has been applied to them, and the wood, especially on the upper side, has the bark more or less injured. There is not any trace of disease, though there may be some gumming lower down on the shoots; but there is no evidence of this. The wood is very green and unripened, and probably that condition accounts for the injury to the buds and bark by the dressing of softsoap and sulphur, which in former years, and with the wood well matured, did no harm. The last season was so wet and dull that in many cases the wood of Peach trees was not properly ripened, and in consequence much more susceptible of injury.

GRAPES (Cymro).—The flavour of your Gros Guillaume is particularly good for this variety, which is at its best in that respect after hanging some time, or during February and March, when it is particularly rich and has a fine sprightly flavour. The Vine usually is an indifferent bearer on the close pruning system. Indeed, it requires abundance of space and free exposure to light; and by the long rod system of pruning it larger bunches are produced than by the spurring system. With these advantages and a high temperature this Grape can be grown to high perfection. A bunch was grown by Mr. Roberts, gardener at Tullamore, Ireland, which weighed 23lb 5oz. The portion of shoot you have sent is thoroughly ripened in the wood, and the buds are plump, though somewhat pointed. Possibly the position of the Vine in the house—the cooler end, the border of a close nature, or such as to induce sturdy habit, with possibly close pruning and not allowing room for the spread of foliage—is cause of the compact, well-set bunch of relatively small berries. We advise a larger extension of growth, less close pruning, and a more generous supply of potash and magnesia; indeed, top-dress with a mixture of three parts superphosphate, two parts sulphate of potash, one part sulphate of magnesia, and one-half part sulphate of iron, applying 4oz of the mixture per square yard at the winter dressing, and repeat as soon as the Vine comes into leaf, and again when the berries are thinned, merely pointing or scratching over the surface of the border after application. The other substances you apply are excellent, and we think with greater extension of the growth the results would be satisfactory.

GRUB IN APPLE SHOOT (Fruit Tree Pest).—See "Entomological Notes" in the present issue.

ENTOMOLOGICAL CATALOGUE (A. P.).—We only know of Watkins and Doncaster, 36, Strand, London, to whom you may write.

ERRATUM.—In the notice of the book, "Mealy Bugs and Scale Insects," page 157, in line 12, second column, read "transferred" for "transformed."



CROWEA SALIGNA.

CROWEA SALIGNA (J. B.).—Croweas are hard-wooded plants with showy flowers, and generally odorous leaves. This latter character is distinctive of the Rutaceæ, to which Crowea, as well as the Orange (Citrus), and other well-known genera belong. *C. elliptica* has light pink, and *C. saligna* has purple flowers, but none of the Croweas are very frequently cultivated. They are propagated from cuttings, and grown under the same conditions as *Eriostemons*. We should like to hear of your success with these and other hard woods, notably Azaleas, Rhododendrons, Acacias, Cytisus, Chorizemas, Correas, Grevilleas, *Leschenaultias*, and Boronias.

PREVENTING BIRDS TAKING THE FRUIT BUDS (E. G.).—If the trees are small, that is, cordon, espalier, bush, or pyramid, the best plan is to procure some freshly burned lime, slake it in

water, and form into a wash readily applicable by means of a syringe. To prevent the limewash clogging the syringe, pass through a hair or fine mesh wire sieve. The limewash should be applied as soon as made, coating the trees well, and being from freshly burned lime will adhere to the buds, and birds will not take them. Stale or air-slaked lime is no use for making the limewash, as this soon washes off. The limewash is a good remedy for overgrowths of lichen and moss, and that falling on the ground will in turn benefit the trees. Another plan is to scare the birds by placing twigs or small canes of bamboo obliquely in the trees and projecting beyond their branches a little as well as amongst the twigs, and smear these with a sticky substance, such as a composition made by melting together by heat two parts resin and one part sweet oil, applying to the sticks or canes by means of a brush. Or procure some birdlime from a "naturalist" or dealer in cage birds, and add to it an equal quantity of linseed oil, melting and mixing together, then smear on sticks or small bamboo canes and affix in the trees as before advised. The smear will not hold the birds alighting upon the sticks or canes for long, but sufficiently to give them such a scare that they will not come near the trees again for a long time, and by then the buds will have developed into blossom.

LILIUM AURATUM BULB DECAYED (J. H.).—Yes, the bulb is affected by the Japan Lily disease (*Rhizopus necans*), which also attacks the bulbs of *Lilium speciosum* as well as *L. auratum*. The bulb is the part attacked, which in the earliest condition shows a slight discolouration at the base when cut open. The disease extends rapidly, the entire bulb becoming discoloured, and finally soft and rotten. The fungus can live as a saprophyte on the humus in the soil, and attacks the bulbs when lifted, the infection usually commencing through broken roots. As the base of the bulb is the point attacked, roots are not pushed or any top growths, but the bulb becomes rotten in the soil, and shows, in the later stages of decay, a white felt of mycelium, from which numerous clusters of fruit resembling small black pinheads stand erect, and are the conidial stage of the fungus, and resting spores are produced in the tissues of the decayed bulbs. As inoculation usually takes place when the bulbs are taken up for exportation it is likely that the bulbs are so far infected when received that treatment avails very little. The dusting with flowers of sulphur is a good plan, the bulbs being rubbed in it, but submerging for twenty minutes in a 1 per cent. solution of salicylic acid and afterwards thoroughly drying the bulb kills the mycelium reached as well as the spores of the fungus.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (B. Featherstone).—*Acacia cultriformis*; it is somewhat shy to flower. (A. B.).—*Aspidium* sp.; the piece seems immature. (Anxious to know).—*Dendrobium chrysanthum*. (F. F.).—1, *Agathis australis*; 2, *Daphne indica rubra*.

Trade Notes.

Silver Cup and £5 Prize for New Plants at Shrewsbury.

Messrs. William Bull and Sons, Chelsea, announce that they are offering, through the Shropshire Horticultural Society, a special prize for new plants, a silver cup value ten guineas, and £5 cash. This is to be awarded to the exhibitor of the best six new plants sent out by the firm of William Bull and Sons. A list of the plants eligible for this competition will be supplied on application to Messrs. William Bull and Sons, new plant, seed, and bulb merchants, King's Road, Chelsea, London. S.W. The six plants must be six species or varieties, but each may be composed of one or more individual plants, if grouped in one pot or pan. The names of the six plants to be exhibited must be sent with the entry to the secretaries of the Shropshire Horticultural Society, The Square, Shrewsbury.

£5 for One Pelargonium.

H. CANNELL AND SONS.—We have received the seed catalogue of this firm, and there are a number of notable features in it. Primulas occupy a goodly space, for the Swanley house is in the forefront where these seasonable flowers are concerned. In our Kew notes we name the variety Red Lady, and we find it here recorded, together with such sterling sorts as Lady E. Dyke, Miss Irene, Mrs. H. Cannell, Pink Lady, and The Lady. All of these are real gems, and many of our readers must have tested them. Three new varieties are offered for 1904. Seedling Pelargoniums are not often listed, but they are here, and, what is more, Messrs. Cannell and Sons are promising £5 for a single plant of any Pelargonium that to their mind shows a new and distinct colour. Here is a chance for hybridists and cross-breeders to earn both money and recreation at the same time. Cactus-shaped and other Cinerarias; Petunias, single and double; Dahlias in quantities, and Sweet Peas, all receive ample space. The catalogue is well arranged and illustrated, and the novelties are all easy to find in the pages by special heavy type.



Something About Wheat.

What can we say about wheat that has not been said dozens of times before? Not much that is new, we doubt; but we want to point out some of the reasons for the growing love of foreign wheat and the differences between these foreign wheats and those of our own growing. We are not quite sure of the figures at this moment, but we are somewhere near the mark (it will be less this year) when we say that our English home supplies will only suffice to feed our dense population for eleven weeks out of the fifty-two which go to make up the year. Hence it is very certain that we depend far more than we ought to on the surplus with which our neighbours kindly supply us.

It might be thought that having only such a limited supply we should at least be able to enjoy enhanced prices; but no such thing. We have to be content to take for our very best samples 28s. to 29s. per quarter; whilst North American will easily fetch 34s. to 35s. per quarter; South Russian a trifle less. As bread eaters we are sacrificing much to appearance. We want to see on the table a handsome loaf, very white and very light. We are altogether forgetting the mission of bread. We fill instead of feed ourselves. This pure white, dry flour is by no means so nutritious as our darker, damper production; but every year sees less of our own growth milled. We are becoming, as a nation, wholly enamoured of the outside variety.

It has been asked time and time again why we as farmers do not stir ourselves and produce what the millers

and the bakers demand. We are told we are slow, stupid, and pig-headed, just going on in the old ruts, out of which nothing but the prospect of starvation will ever move us. Fair and softly, friends. There are many causes at work, and causes over which we have no control. Just for a moment consider our geographical position. Temperate zone; insular position; a land of much rain, fogs, and general moisture; a land where bright, hot, sunny days are pretty scarce, where damp, dull ones are far more in evidence.

There is no land where crops are heavier than they are with us. Look at the immense amount of growth we get—of straw, of grass; but we do not get the hot sunshine to rapidly finish off the cereal crops; or, at least, so seldom that we cannot reckon on it as a certainty. It is not enough to have dry weather; we do get that along the eastern coast; but dryness combined with heat is the exception rather than the rule. There are some few soils that from their nature appear to attract the heat. We might instance some of the de-forested lands of Nottinghamshire, where with an average hot summer wheat will become so hard and dry as to quite equal in quality any product of North America or Hungary; but we find farmers are not particularly partial to this land, for when threshing day comes there is a woeful tale to tell—the wheat is small and thin; it finishes before it feeds, and, although the price is better, it does not balance against the lesser quality. As wheat only comes in its proper rotation, the other crops taken in the interim suffer so severely from lack of what we may term *strength* in the soil, farmers often wonder whether it might not be as well that this land should return to its primæval forest. What a farmer likes to see is a bold, fine wheat, plump as a cherry cob, and weighing out to six quarters per acre; but the miller will have none, if he can avoid it.

There is a substance in wheat called “gluten,” and it is the quantity of gluten in the flour that determines its value. Gluten is that elastic substance in wheat which, when brought into conjunction with yeast in the process of bread making, causes the mass to swell and become “light”—i.e., porous and easy of digestion. Sunshine matures the gluten and enhances its quality, whereas the soil contributes to the quantity. Naturally there are some few wheats that mature earlier than others, although, as before said, this early maturity is often at the expense of quantity. It has been suggested, and the suggestion has been acted upon, that it might be wise to try for our own growing certain of the foreign varieties. Hitherto the trials have not been successful.

In the case of Australian wheat, we hear that not even was the return of corn equal to the quantity of wheat sown, and this in a hot, dry season. An agricultural writer suggests that here is a fine field for experimentalists and hybridisers. And there must be a fortune awaiting the man who can produce a wheat strong in gluten, and, at the same time, a heavy cropper. So far as we can learn, even the foreigner under favourable conditions, though he comes at the gluten successfully, fails to get a big yield. And we have it on the testimony of the late Sir John Lawes (no man knew more about wheats than he) that excessive manuring tends rather to diminish the gluten than to increase.

We note a fact that may not be known to all our readers; but it goes to show very plainly the reason that the baker prefers the Hungarian flour to our own. Not only does he produce a loaf better to look upon (lighter and whiter), but out of a given quantity of flour the Hungarian yield the greater number of loaves. Thus we are told: “A sack of best Hungarian will make 112 loaves of 4lb each; whilst a sack of English will only allow for 92 loaves of the same weight.” So that he gets an excellent return for the extra 5s. per quarter he pays for the wheat.

Much has been said of late with respect to the benefits which are said to accrue to us through, or by, the use of motor power. We are to reap our crops in intervals of sunshine between showers; we are to let it get thoroughly ripe so that it may be at once motored to the stack yard (this will merely be a name), threshed at once, and motored to the mill. This sounds very nice as placed before us by the motor agent, but there are several details that call for attention.

To begin with: In the matter of this gluten, to secure the greatest percentage wheat must not be allowed to stand till fully ripe, it must “finish” in the stack, and to “finish” successfully in the stack (according to the state of

the weather) its stay there must be more or less protracted. It is very rarely, too, that English wheat is in condition to be threshed straight from the field, it requires to “make” in stack a longer or shorter time as the case may be. It is only, as a rule, stern necessity that compels a farmer under any circumstances to thresh *before* Christmas. It is partly this damp, unready wheat flour that has caused a dead set against English produce. It is impossible in our climate to hurry unduly any natural process, and barring vermin, wheat improves nowhere so well as in stack. There is always more or less danger in storing wheat in granaries—that is, if the wheat is in the least degree out of condition—i.e., damp. The mass is too closely packed to allow of free ventilation, and, besides which, it is open to depredations other than mere vermin. Also, too, on many farms the granary accommodation leaves a great deal to be desired. However, we think this year there will not be such overplus of wheat as to make the care of it a great burden on any shoulders.

The agricultural reports furnish most depressing reading. Never was there less autumn sown wheat, and such as there is, is by no means a strong full plant (wheat is not aquatic in its habits). The grass lands, especially those which lie low, have been flooded again and again, a fact which will certainly not improve the quality of the herbage in the summer months. Valuable manures are to be found in solution in streams and waterways where their presence is an evil, and the lands thus deprived will be the sufferers. Great as must be the shortage of wheat in the coming harvest, there seems at present to be every chance that other grain crops will be found lacking; not from want of will on the part of the farmer, but from want of power—day after day of rain falling on land already saturated to its fullest capacity suggests little prospect of a favourable seed bed for barley or oats.

Of a certainty there will be none early sown, and the later the sowing the less prospect there is of yield or quality. February is out, and work is more than backward; no start having been made at all with spring sowing. Speaking for a moment on the subject of barley, we see (without surprise) that the result of some experiments in barley culture goes again to prove the great superiority of the old “Chevalier,” as contrasted with some of the newer and highly vaunted varieties. Our old friend gave the greatest yield and the highest weight per bushel. It is always a favourite with maltsters, and given a favourable season there is none prettier in sample. It is wonderful how this old favourite keeps its place.

Work on the Home Farm.

We are happy to be able to chronicle a change to better conditions for work on the land. We have enjoyed a week of fair weather with drying winds, and the improvement in the surface soil is most satisfactory. Farmers are once more ploughing and dragging, but they should be careful not to commence work too soon. There is very small prospect of severe frost now, and the pressure of horses' feet on the land should be avoided until the surplus water has quite drained away. Some farmers begin to talk of drilling, but it must be only talk, for even on the best of soils Ladyday is not too late a date for sowing—and there is nearly a month to Ladyday yet.

There is one item of work which may be well done at the present time, i.e., cabbage planting. The land may be manured—and it is difficult to put on too much muck—ploughed and planted on the same day. A well rooted cabbage can stand an immense amount of knocking about, and may be planted under all sorts of conditions. Any farmer who has not any cabbages growing and wishes to ensure himself against scarcity of keep next August would make no mistake in buying plants for a few acres and planting them at once. The plants could be bought at 1s. 6d. per thousand, and with railway carriage would cost no more than 2s. Well, 12,000 to the acre at 2s., and 1s. for planting (36s. per acre), the certainty of a crop (no turnip fly), and a crop as good as any three acres of turnips. We may appear too enthusiastic about cabbage for stock, but we believe there is nothing so valuable, and it is only the trouble and extra labour which prevent a great increase in the acreage. We believe that a good crop of cabbage is worth £10 per acre to consume on the land, and where can you find a more profitable one?

Beef trade is improving again, as is the case with mutton also. Lambing is progressing well; the wet winter and enforced grass diet for the ewes has been most beneficial to them, and so far we have a very clean bill of health. We see a few very forward lambs about, and think that the consumer of Easter lamb should be well supplied.

We have been delivering potatoes for want of a better job, but cannot glut the markets; which are very brisk.

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Journal of Horticulture.

THURSDAY, MARCH 10, 1904.

The Return of Spring.

AFTER the long wet summer, the continuous rains of autumn, and the deluge as well as cold of winter, Spring has come to us once more, lacking nothing of its usual freshness, and spreading a spirit of glad hopefulness around.

Never, surely, were improved conditions in regard to weather more heartily welcomed than now. And although the sun, as yet, only favours us with fitful gleams, the drying winds are working wonders with Mother Earth. The gardening fever is beginning to assert itself on all sides, and after a long period of comparative inaction, there is much work to be done in order to get the land in a suitable condition for the sowing and planting of crops. The shattered soil, which was thrown up roughly long ago, has already in many instances, been forked over, and in open positions has dried sufficiently to allow the sowing of early crops to be done with every prospect of success.

No undue haste, is of course, advisable in this respect, but the most should be made of opportunities as they occur. The old yet excellent plan of opening the drills and allowing them to remain exposed to sun and air for a few hours before the seed is sown, is one which may be followed with great advantage during a season like the present, for the soil needs warming as well as drying, and it is wonderful what a few hours' sunshine will do in this respect.

We should hear far less of failures through early sowing even in bad seasons, if the above plan was more generally followed, in conjunction with frequently hoeing the surface of the soil as soon as seedlings push through. Another practice which is worthy of the attention of all in regard to early crops, is the scattering of burnt refuse along the drills before sowing the

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

seed, no matter whether the soil is heavy or light. We have proved over and over again how much more readily young seedlings of all descriptions start when the drills have been so prepared than when no such attention has been given. In all gardens a great deal of rubbish has to be burned during the autumn and winter months, the ashes of which, with a little care in storing in a dry place, may be turned to splendid account in spring, not only for seeds sown in the open air, but also in the case of others sown under glass.

In gardens where the soil is very heavy and the glass structures limited there is often a difficulty in getting young plants of the Brassica family, and Lettuces, to start freely when they have to be sown on warm borders in the open air. In such instances burning a few inches of the surface soil will work wonders in regard to the ease with which plants can be raised, and the little trouble given by slugs and other insect pests. With a surface dressing of sweet leaf soil annually, the soil so treated will continue in good condition for years, and could be used as a seedbed regularly in spring.

Early vegetables will undoubtedly be in great demand again this year, and a great deal can be done from the present time onward to forward crops by hoeing frequently between them during bright weather, so that the warmth of sunshine may penetrate as deeply as possible and cause roots to move quickly. Good beds of young Cabbage plants are not so numerous as last year, as the wet and slugs combined have destroyed numbers and given beds a "gappy" appearance. Light and frequent dressings of soot and nitrate of soda, before hoeing, will, however, do much to push them on during the next six weeks. The progress made by Cabbages receiving good treatment during a genial April is such as to arouse the gardening instinct in any human breast, and for this reason gardeners may well have a warm corner in their hearts for Cabbages, for among all the products of the vegetable kingdom they perhaps respond more rapidly to the influences of genial spring weather and extra attention than any other.

Early Cauliflowers are always highly prized, but there is often a difficulty in finding space for them on warm borders, and if the plants are set in the open too early they are greatly checked by winds, if not killed by frost. An excellent method of giving them protection is to stick a couple of Spruce or Laurel boughs around each plant when setting them in their permanent positions. These boughs may be allowed to remain for three or four weeks, choosing a time when the weather is genial for removing them. Plants so treated will pass unscathed through weather which would kill those unprotected, and in some districts planting may with safety be done early in March, when this little extra attention can be given.

Peas which are started in pots, and afterwards planted in the open air, are generally greatly benefited by having the protection of Spruce or other branches for a couple of weeks, for no matter how sturdily they may be grown under glass, the cold winds usually check them considerably when they are set in the open. Timely attention to the various matters above indicated will not only help to secure extra early crops, but will also do much to ensure their being good ones too.—H. D.

TO BE LET OR SOLD.—We learn on good authority that a charming residence, situated somewhere in the Thames Valley (boating a speciality) will shortly be vacant. The only reason for the present tenant's leaving is that the gentleman having taken it because the river was at the bottom of the garden, now finds the garden at the bottom of the river, and he does not care to confine his horticultural taste solely to the cultivation of aquatics.

EXPERIMENT GARDENS.—One of the greatest needs of American horticulture (says a contemporary) is a trial garden under the direct control of the practical horticulturist and quite free from the associations which are attached to the State experiment stations. The stations render a great service to the industry, but as a matter of fact they do not serve the gardener and the commercial horticulturist, the nurseryman and the seedsman, to the full degree. They are more for the farmer and the truckmen. What we would like to see is an establishment supported by the general horticultural interests (trade and amateurs combined) in which modern everyday methods of garden and greenhouse culture would prevail.

How to Raise New Daffodils.

A paper read in Cape Colony by Mr. Pe'er Barr, V.M.H.

In the hot and sunny climates of the Western Hemisphere, the attempt to hybridise Daffodils out of doors with the chance of getting seed, can have but one result, viz., partial or total failure. Take as an example the work of Mr. Bradley, in Sydney, N.S.W. Last year he fertilised some five hundred Daffodil flowers out of doors. There was no doubt about the fertilisation having taken, but the influence of the powerful sun destroyed the embryo. The seed vessels were large and promising, but when they showed signs of ripening, the vessels shrivelled up and were found empty, and that was the case in some eighty or ninety per cent. In those where the seed ripened, some had one and two seeds, where there should have been many, and instead of having thousands of seeds, he had some 200 from his 500 flowers. Now let us see how this could be avoided. In New Zealand, Tasmania, and Australia, bush houses take the place of greenhouses. A bush house is made of laths, over which are fastened Tea tree branches, a very abundant scrub. These are laid thinly over the laths and fastened down with laths or cord. Under this all sorts of plants are grown which would be burned up if fully exposed to the sun's rays, the covering being arranged to suit the particular plants; Ferns have a thicker covering than Rhododendrons, and so on. In South Australia lath houses are used, the laths on the roof are about two inches broad, and the same distance apart. By this arrangement the sun's rays are broken. Some such erections might be valuable here for protecting plants and hybridising Daffodils.

Mr. William Blackhouse, one of the early hybridisers, lived on the Weardale Hills, and had a little porch to his library, where a few plants in flower were kept. Here he did all his fertilising, and being a busy, punctual man, living a long way from his office, he had to catch his train in the morning. It was his custom to spend a few minutes each morning in his miniature greenhouse, and to amuse himself fertilising Daffodils in the spring of each year. I was unacquainted personally with the late Mr. Blackhouse, but a few years amongst the Daffodils he had raised, I gained insight of the man, and made it my business to get from his son, Mr. Chas. Blackhouse, an invitation to spend a day or two at his house. During the day we walked and talked amongst the Daffodils, in the evening we searched amongst the departed's papers, which had not been destroyed, to see if we could get any clue to his mode of procedure, filling up the rest of the evening with general conversation, during which I turned the conversation upon his father. From my study of the Daffodil flowers I felt sure the man was of a nervous, sensitive, and gentle nature, and very refined in his pursuits. First I asked what sort of a man his father was, and when described, said, "Was he of a nervous, sensitive, and gentle nature, and were his pursuits very refined?" He replied, "He was all that," and facing me, said, "Why do you ask these questions?" I replied, "That was the conclusion I had arrived at from my study of his Daffodils."

I have often dwelt upon this subject with friends, and hold that a man in hybridising imparts the characteristics of his nature to the flowers he is raising. The idea is generally scouted, but I am still of the same opinion, and ask my audience to observe for themselves. On the other hand, Mr. Leeds's flowers are all more or less coarse. Personally, I had little knowledge of the man; a few letters passed between us, but in the hurry of business one has no time to study handwriting. I therefore made some inquiries regarding the man from those intimately acquainted with him, and found he was an off-handed, sharp business man, with not much refinement. It is said he fertilised his flowers out of doors and crossed without much regard to order. Mr. Blackhouse, I am of opinion, saw in advance what the results of his work would be. Amongst the latter gentleman's Daffodils I did not find one coarse flower. You may say he would naturally destroy the flowers that did not come up to his standard. I might have thought so too, but it happened that his son found a pan of his father's seedlings, and presented them to me, and these, when they flowered, fully bore out what I found in those which had blossomed while he was yet alive.

In preparing to hybridise, first, you should make up your mind what you wish to attain. Second, make yourself familiar with the time each variety of Daffodil flowers. Third, use only the strongest and finest bulbs. Fourth, look well to constitution. Should you desire to work with a bulb which is feeble in your garden, and find it is strong in any other garden, get the bulbs from there. Fifth, aim high, and do not waste your time in producing inferior flowers. It is the same trouble to raise a useless variety as it is to raise a high-class flower.

(To be continued.)

THE PROGRAMME of the horticultural exhibition at Ghent has reached us. The exhibition comprises ornamental plants, orchids, and Chrysanthemums, and takes place on November 6 to 8, this year. The general secretary is M. N. E. Fierens, Société Royale d'Agriculture et de Botanique, Ghent.

NOTES & NOTICES

Hanley Horticultural Fete.

This fête and exhibition will be held in Hanley Park on July 6 and 7. The schedule of prizes is now published, and the secretary is Mr. Jos. Kent, Hanley Park Fête, Hanley, Staffs.

The Horticultural Hall Fund.

Mr. Geo. Gumbrell, secretary to the Ware and District Horticultural Mutual Improvement Society, notifies us of the fact that his society contributed eight guineas to this fund on March 7. This is a good example, for surely it is to the advantage of gardeners and gardening to have a strong and recognised national horticultural society in London.

Beckenham Horticultural.

On Friday, February 26, Mr. Joseph Cheal lectured to a large audience in the Beckenham Public Hall on his tour through Canada and the U.S.A. The lecture proved doubly interesting, for Mr. Cheal had about eighty lantern slides prepared from photographs of his own manipulating. As these were put on the screen Mr. Cheal imparted the necessary explanation in an exceedingly happy way, and at the close was the recipient of very hearty applause.—T. C.

Appointments.

Mr. Frederick Overill, inside foreman at Ayton Castle Gardens, and previously foreman at Broxmouth Park, as head gardener to Sir Christopher Furness, Tunstall Court, West Hartlepool, Co. Durham. * * Mr. Horace L. Hirst, for over three years gardener to Mrs. Birkbeck, Anley, Settle, and the last eight months at Poppleton Hall, York, has been appointed head gardener to Major Cradock, D.S.O., Hartforth Hall, Richmond, Yorkshire, and entered on his duties February 6, 1904. * * Mr. A. Hepworth, late gardener to Jesse H. Roberts, Esq., Fremont, West Derby, Liverpool, has been appointed gardener to W. E. Cain, Esq., Wilton Grange, West Kirby, Cheshire. * * Mr. H. Mills has been appointed as head gardener to Mrs. Birt, Llanaway Gardens, Godalming.

Obituary—Mr. R. Jordan.

It is with much regret we announce the death of Mr. Robert Jordan, which occurred at his residence, Devon Villa, Farncombe, on Sunday last at the age of seventy-two, after a serious illness, from heart affection. The deceased, who was a native of Devonshire, came to Godalming some years since, and for forty years had acted as head gardener to Miss Hallam and Mrs. Birt of Llanaway to whom he proved himself a faithful and devoted servant. He took a warm and active interest in the affairs of the Godalming and District Chrysanthemum Society, the Godalming and District Gardeners' Mutual Improvement Association, and other similar societies. Mr. Jordan actively participated in the affairs of the borough, having been a member of the Town Council for some years until failing health caused him to retire in November, 1900.

Notes from Hamilton.

It gives me great pleasure to inform you that Hamilton now includes in its long roll of societies and organisations a field club. This most essential part of a town's educational equipment was formed on March 1 in the Academy. The club will include, I understand, all natural history, physical science, archaeological and historical objects, and subjects belonging to the district, for all of which the district gives ample opportunities. Our Gardeners' Association, now about 100 strong, had a record meeting on the night of March 1. Alfred G. Miller, Esq., of Hamilton, a most enthusiastic fern collector, gave an interesting lecture on "British Ferns." Mr. Miller, who knows where to find all the rare ferns all over the kingdom, dealt of course more minutely with those of the district. And it is wonderful how this coal-laden atmosphere permits the existence of so very many species. The weather is very wintry; the ground is covered with an inch of snow.—D. C.

Kew Gardens.

Many private gardeners seem to think that Kew has untold sums of money at its disposal. As a matter of fact, Kew has its own nurseries and propagating houses, and except the purchase of novelties it is self-sustaining. Owing to the vast variety of the methods of cultivation employed, it affords unique opportunities of professional training to young gardeners. It is worked as a superior technical school, the gardeners (unmarried) being passed through the different departments during a two years' course, after which they leave unless promoted to permanent positions. They further receive methodical scientific instruction by evening lectures. The Botanic Gardens and Stations in India and the Colonies are mostly supplied by Kew men on the nomination of the Director.

The Promotion of Fruit Culture.

The Departmental Committee on Fruit Culture, appointed by Lord Onslow, held sittings on February 24 and 25. The following members were present: Mr. Boscawen, M.P. (chairman), Colonel Long, M.P., Mr. C. W. Radcliffe Cooke, Dr. Somerville, Rev. W. Wilks, Messrs. Hodge, G. Monro, P. Spencer Pickering, and Ernest Garnsey, secretary. Evidence on behalf of the Board of Agriculture and Fisheries was given by Mr. Rew, of the Statistical Department, Mr. Broske Hunt, of the Education Department, and Sir W. Thiselton-Dyer, director of the Royal Gardens, Kew. Evidence of horticultural instructors for County Councils was given by Mr. Luckhurst, Derby; Mr. Goring, Sussex; and Mr. Ettle, Somerset.

Sussex Weather.

The total rainfall at Abbots Leigh, Hayward's Heath, for the past month was 4.14in, being 1.90in above the average. The heaviest fall was 0.70in on the 12th; rain fell on twenty-one days. The maximum temperature was 51deg on the 20th and 21st; the minimum, 25deg on the 29th. Mean maximum, 41.14deg; mean minimum, 33.19deg; mean temperature, 38.66deg, which is 0.22deg above the average. Similar weather conditions to that for January continued till the 20th, we then had a few fine days, but a gradual decline of the temperature set in, and snow came on the 26th and two following days to the amount of $\frac{1}{2}$ in (of rain), and on March 1 10deg of frost were registered.—R. I.

February Weather at Belvoir Castle, 1904.

The wind was very changeable, the prevailing direction being S.W., total nine days. The total rainfall was 2.87in; this fell on twenty days, and is 1.06in above the average for the month. The greatest daily fall was 0.49in on the 3rd. Barometer (corrected and reduced): Highest reading, 30.351in on the 28th at 9 a.m.; lowest reading, 28.533in on the 9th at 6 p.m. Thermometers: Highest in the shade, 53deg on the 20th and 21st; lowest, 22deg on the 29th; mean of daily maxima, 41.75deg; mean of daily minima, 31.93deg; mean temperature of the month, 36.84deg; lowest on the grass, 17deg on the 29th; highest in the sun, 85deg on the 28th; mean temperature of the earth at 3ft, 39.82deg. Total sunshine, 65 hours 30 minutes, which is 18 hours 16 minutes below the average; there were six sunless days.—W. H. Divers.

The Commons and Footpaths Preservation Society.

We must again congratulate this most excellent society upon the report of the Kent and Surrey Committee for the year 1902-3, copy of which has recently reached us. Its aid has, during the year under review, been sought in over forty cases, involving the preservation of commons and other open spaces, while no fewer than sixty-eight cases of interference with rights of way were, in that time, dealt with by the committee. These would doubtless have been lost to, or at any rate have seriously affected, the public, but for the valuable aid afforded for their preservation. Among other notable instances may be indicated the good work in which the society has been assisting in the preservation of the incomparable view from Richmond Hill showing Petersham meadows, and of the river front from Richmond to Kingston, both of which beauty-spots, so dear to the heart of the Londoner, are now preserved to the public for ever, by the passing of the Richmond Hill (Preservation of View) Act, 1902. The society, whose offices are at 25, Victoria Street, Westminster, will be glad to send particulars of its meritorious work, for which it appeals for necessary subscriptions and donations, on application to the secretary, Mr. Lawrence W. Chubb.



Caladiums.

The tubers of these handsome foliage plants should be shaken out and repotted now. Some people advise potting them straight away into the pots in which they are to remain all the season. I think the best plan is to start them in small pots of 3in or 5in diameter, according to the size of the tuber, and when nicely growing and well rooted, to shift them into larger pots, as the soil is not so liable to become soured through watering. It is advisable to warm the soil before potting, and to pot them, if possible, in the house in which they are growing, without subjecting them to a lower temperature. Equal portions of loam and peat, with a sprinkling of sand and bonemeal, forms a good potting compost, and they should be given a place in the stove house, where they can be shaded from the direct rays of the sun.—E. B., South Berks.

Coleus Thyrsoides.

Coleus thyrsoides has within three years found a place in practically every well-equipped garden of the country. The latest form of growing it was noted at Kew, where young flowering shoots had been rooted in 3in and 4in pots, these, with the racemes of blue flowers, making effective objects at the edges of stages. Messrs. Veitch (to whom we owe our illustration) describe it at length thus:—A robust and exceedingly handsome species of *Coleus*, recently introduced from South Central Africa. It forms a rather tall, much-branched perennial undershrub 2ft to 3ft high, the branches terminating in erect panicle-like racemes of ten to fifteen bright blue flowers with a short throat compressed laterally and a two-lipped mouth. Its merits as a horticultural plant consist in its panicle-like (thyrsoid) racemes of flowers produced from November to February, and in the facility with which it can be cultivated. It grows freely in an intermediate temperature, in other respects requiring the same treatment as the varieties of *Coleus Blumei* grown for their foliage.

Cedrus Libani.

An interesting item of information with regard to forestry is to be found in the fact that the Cedar of Lebanon was not introduced into England until it was planted in Bretby Park, South Derbyshire, in February, 1676, as appears by the gardener's bill, still in the possession of the Earl of Chesterfield. The famous Enfield Cedar was planted at a later date than that at Bretby, and those in the Botanical Gardens at Chelsea in 1685. The Bretby Cedar is 13ft 9in in circumference. But the Bretby Cedar is a stripling, both in age and girth, when compared with the magnificent Yew in Darley Dale Churchyard. This Yew, although it has lost some of its limbs in recent years, is undoubtedly the largest and most luxuriant in the United Kingdom. Its girth, 4ft from the ground, is 32ft, and its probable age over 2,000 years. Perhaps the only visit paid by Lord Beaconsfield to Derbyshire was on the occasion when he was entertained (not long before his lamented death) at Bretby by the Countess of Chesterfield. We can imagine him being impressed by the stately Cedar and the other trees in the ancestral seat of the Stanhopes—trees that suggest poetry whilst they contribute shade, and recall Tennyson's "Talking Oak." For Lord Beaconsfield was a true lover of trees. He once wrote that he "was not surprised that the ancients worshipped them. Lakes and mountains, however glorious for a time, in time weary; sylvan scenery never palls." He lived and died in what he described "his own green retreats." Mr. Ruskin somewhere praises the heart and moral nature, sure to be sound, he thinks, of the man who is fond of trees. His detractors called Lord Beaconsfield "un-English." Yet he liked best precisely that form of nature which is most English of all, a nature clothed in Oak, and Ash, and Beech, that "flourish best at home in the north country."

Picea Nordmanniana.

This is very often called *Abies Nordmanniana* for the reason that most of the Firs are classed under this name, with a few of the Spruces. Piceas are nearly related to *Abies*, and have flat, linear leaves, like a number of species in that genus. Nordmann's Silver Fir is of majestic habit and symmetrical form, with massive plump branches of shining, dark green foliage, showing its light under surface in silvery ripples. *Picea N. Veitchi* resembles *P. Nordmanniana*, but is of freer growth, and the under side of the leaves is of a bluish tint. Both trees, says "American Gardening," are exceedingly hardy, and deserve attention.

Smilax.

If the *Smilax* bed is to be renewed next summer the seed should be sown at once. Keep the seed boxes in a rather warm place until it germinates, and pot off as soon as two or three leaves have been developed. A little later, if pressed for room, the small plants can be shifted to 3in pots and placed in a mild hotbed, where they may remain until they are planted out in June or July. Keep the plants in the beds well syringed to hold red spider and thrip in check, and do not subject them to heavy tobacco smoke, for it burns the stems. A few weeks after a section of a bed has been cut, cleaned off, and started into growth, a light mulch of well rotted cow manure will be beneficial.

Azalea amœna.

Because of its ease of propagation from cuttings, *Azalea amœna* (says Mr. Meachan in the "Florists' Exchange") is a popular plant for both florists and nurserymen, possessing many merits, and being obtainable at reasonable prices. All *Azaleas* are propagated from cuttings without difficulty, and in this way a stock is soon acquired. The *A. amœna* proves a good selling sort as a pot plant, and it is one which can easily be had in flower for Easter. It needs a year or two's growth in a pot to do its best, and being well established in the pot it flowers nicely every year. Being of a compact growth, it is a good plant for edging beds of shrubs, evergreen or deciduous. It is an evergreen, but its leaves are very small, and being of a dark brown colour in spring, it does not strike everyone at first sight as being evergreen. But it is, and its hardiness is unquestioned. It makes a spreading growth rather than an upright one, forming a broad, spreading bush as it grows, and when its dark rose-coloured flowers expand in early spring it makes a great display.

A Wedding Decoration.

At a recent American wedding the floral decorations were amongst the most elaborate and costly ever attempted. The background for the wedding party was a broad panel, reaching from floor to ceiling, and built entirely of *Lilium Harrisii*, white Roses, and ferns. The decorations in the dining-room were pink, the window sills and ledges supporting vases of *La France* Roses, on the mantel *Smilax* ropes, dotted with pink rosebuds, radiated from a cluster of pink Roses above to garlands of *Smilax* below. Red blossoms alone were used, with masses of ferns, in the library. Great bouquets of Meteor Roses and rose red *Azaleas* were ranged around the low book shelves, large hanging baskets of ferns hung over the doorway, while bunches of Meteor Roses intertwined the side arches. A tall vase of exquisite long stemmed American Beauty graced the table. Another apartment was red in tone, with glowing masses of Meteor Roses banked half-way up the walls, which also bore a graceful tracery of *Smilax* near the ceiling. Over the foot of the stairway was suspended a large wedding bell of white Carnations and ferns, with clapper of Lily of the Valley. Another wedding bell, on the third floor, was composed of white Hyacinths and Lily of the Valley. A circular light shade, suspended above the bridal table, was wreathed in pink Roses, from which fell an exquisite shower of pink Roses and Lily of the Valley, tied with narrow pink ribbons and tiny fern leaves. Small pink tulle baskets, holding pink Roses, were also used in the table. The bridal bouquet was a shower of white orchids and white Violets. The maid of honour carried a shower of Golden Gate Roses tied with white ribbons, and the bridesmaids carried shower bouquets of Bon Silene buds and Lily of the Valley tied with pink ribbons.

A GARDENER'S BOOKSHELF.

With Selections of Twelve "Best Books" for a Gardener's Library.

Probably to no other class of men in an equal state of life is a well-furnished bookshelf so much of a necessity as to gardeners. It requires no originality of thought to discover, however, that there are at present existing in the horticultural ranks many men who view with ridicule and scorn those persons who devote any or all of their spare hours to book reading. These unreading gardeners are by no means backward in voicing their anti-book principles, always, unhappily, in such a tone and manner as to leave their listeners to infer that only those who fail to grasp the practice, but grab eagerly at the theory of horticulture, have any need to become incurable bookworms. To hear these happy men, one might conclude that they are so largely possessed of observation, so retentive of its manifold lessons, and so replete with a love and a knowledge of Nature, that they have but to step into the garden when lo! and behold, her riches are at once comprehended. Anything so prosaic as a book is entirely foreign to their requirements. This type of critic is legion, for no reader of this letter will fail to have the acquaintance of at least one.

A person who is so well-versed in the principles and practice of his profession that he can learn nothing from a book or an article written by a person of experience, is undoubtedly a phenomenon. As to the real existence of such a being, however, we need give the matter no serious consideration. Readers of these notes will agree with me that it is not only useful but highly commendable, and, in fact, imperative, that a young gardener should cultivate a taste for reading, for by this means he becomes acquainted with the experience of the most successful growers, who are usually found to scatter broadcast the secrets of their success with a prodigality which only a deep love for the profession can extenuate.

Without prolonging my essay with the introduction of the best system of reading (which well deserves an article to itself), I will deal exclusively with the selection of books which go to form a useful horticultural bookshelf. It will, of course, be understood that books appertaining to gardening, or elementary works on any of the various sciences so closely connected with horticulture, will largely predominate. This is, of course, as it should be.

No bookshelf, then, is complete without a copy of "Thompson's Gardener's Assistant," the latest edition of which is in every way up-to-date. This can be procured on a plan which is known to all gardeners, its total cost being £2 8s.

Then again, there is the "Dictionary of Gardening" (Nicholson), total cost somewhere about £4. Without going so far as to affirm that this work is indispensable, I will, however, suggest that no gardener who has a love of his work, and is desirous of gaining knowledge in every possible way, will fail to make such sacrifices as are necessary to procure it.

Another excellent standard work is Wright's "Fruit Growers' Guide," whilst for Vine culture no book has yet been published which beats "Vines and Vine Culture," by Barron. Other smaller works, limited each to a special subject, are numerous, and the choice had better be left to individual requirements.

Next as to a few elementary works on the various sciences so closely related to gardening, to wit, botany, chemistry, geology, geometry, mensuration, &c., a nice choice may be made according to individual tendencies by glancing at Macmillan and Co.'s catalogue.

Now it is certain that not even a gardener can devote himself solely to the study of sciences appertaining to his profession. His mind will need divertissement, and this may be afforded by purchasing some standard works of fiction, such as the novels of Dickens and Scott, and some historical works or essays, such as Macaulay's. These books are now so cheaply published that there can be no excuse for not obtaining them. Those gardeners also who live in or around Edinburgh are much to be envied on this score, for there is, I think, no city in the two kingdoms where books are sold second-hand at so cheap a rate.

Many young men excuse themselves from obtaining books on the plea that when moving from place to place they are cumbersome and entail expense. This excuse is a flimsy one, for it is quite easy to pack them in a separate wooden box and despatch at little expense by goods train. I hope every young man who reads this letter will make up his mind to form for himself a bookshelf, and, what is more necessary, not fail to make frequent use of it.—WM. ROWLES, The Gardens, Tranby Croft, Hull.

Books are to be looked upon as accessories to practice. From them we gain a wide range of ideas and experiences. These experiences are to be taken as the results of the intimacy with Nature and the records of observations made by our contemporaries or predecessors. It is greatly to the disadvantage of the practice of horticulture, and to the knowledge of the men engaged in this calling, that these books are not read and studied more. If a man has investigated and discovered, and his work goes unnoticed, is the progress of horticulture not hindered? On the other hand, if that man's discoveries are tested and not found wanting, they form a starting point for more advanced prosecution in the same directions. Lastly, while all of us are anxious to see horticulture flourish, and bring social betterment to the professional gardener, is there much hope that those men are likely to ensure respect who choose to remain merely labourers, for the man who has little or no understanding of his craft-literature is only a skilled labourer, no matter what title he may assume. It is for these reasons that we welcome and support the proposal made by Mr. Owen Thomas, that young men, in order to be eligible as members of the coming National Gardeners' Association, should be required to pass an examination in the elementary theoretical principles of horticulture, as well as in the practical.

In order to bring forward certain useful and reliable books to the notice of those who are not satisfied in their own mind as to what are the best out of all the hundreds that are published, the editors invited a few contributors to name each the dozen they considered the best. We must admit the task is difficult, and in drawing up a list of our own we have found it advisable to name eight preliminary books for the acceptance of probationers up to their third or fourth year of training. It is then that they will be learning the practical part of gardening (both outdoor and in, let us hope), and their evenings ought to be spent in acquiring what guidance and equipment science can give.

BEGINNERS' LIST.

- "Cassell's Dictionary of Gardening," 21s. (Cassell and Co.). This will serve as a reference work, and is very necessary.
- "Culture of Vegetables and Flowers," 5s. (Sutton and Sons). A guide to the culture of vegetables, annuals, bulbs; a year's work in the garden; rotation of crops; chemistry of the garden; diseases and insects.
- "Pictorial Practical Fruit Growing," 1s. (Cassell and Co.).
- "Primer of Botany" (Macmillan).
- "Nuttall's (or other) Standard Dictionary," which is seldom found in bothies.
- "Pendlebury's Arithmetic and Mensuration."
- "John's Flowers of the Field."
- "Johnstone's Physical and Descriptive Geography," with atlas.

TWELVE REFERENCE AND TEXT-BOOKS.

The following books are recommended for journeymen, foremen, or head gardeners. If only one complete work can be afforded, let the choice be "Thompson's Gardener's Assistant" (six volumes, 8s. each), which covers the whole field of practical horticulture, is thoroughly up-to-date, and can be obtained by easy instalments if the total sum cannot be paid straight away. It is a book the young gardener should set his mind upon.

- 1 "Thompson's Gardener's Assistant" (Gresham Publishing Co., Southampton Street, Strand, W.C.).
- 2 Dictionary of Gardening (Cassell), or Schlich's "Manual of Forestry."
- 3 "Milner's Landscape Gardening."
- 4 "Amherst's History of Gardening," 21s.
- 5 "Practical Guide to Garden Plants and best Kinds of Fruits and Vegetables" (Longmans and Co., 21s.).
- 6 "Trees and Shrubs" (Country Life Library).
- 7 "The Fruit Garden (indoor and out)" (Country Life Library, 21s.).
- 8 Griffiths' "Treatise on Manures" (Whittaker and Co., London, 7s. 6d.).
- 9 "Diseases of Plants," 5s. (Duckworth and Co.).
- 10 "Strasburger's Text Book of Botany," 16s.
- 11 "Heating by Hot Water," 2s. 6d. (Crosby, Lockwood, and Son, 7, Stationers' Hall Court, Ludgate Hill).
- 12 "Vilmorin's Vegetable Garden."

To those in the ranks of commercial horticulture there are series of market gardening books obtainable through Collingridge, London; or the Salisbury Series from Dorset Buildings. Again, specialists may not desire more than a few books which



"Sutton's Superb" Sweet Williams.

Sutton & Sons

strictly bear upon their operations, be it the culture of orchids, ferns, Roses, Chrysanthemums, or any other class or genus of plants.

My opinion is that it is scarcely possible for two individuals to select the same dozen, because tastes differ so much, the requirements of employers in various classes of gardens therefore vary considerably, consequently gardeners are inclined to obtain the books dealing with subjects in which they are particularly interested for the time being. *All gardeners should, however, endeavour to obtain a wide knowledge of the various branches of horticulture, and also keep up to date in regard to the important developments which are continually taking place.* They can only do this by adding to their library some of the advanced works on the scientific aspects of gardening as they appear. The motto should be "Practice with science."

The following dozen include what I consider to be some of the finest works in circulation on the subjects they treat of:—

- 1 "Thompson's Gardener's Assistant."
- 2 "Fruit Growers' Guide," 3 vols., 21s. each.
- 3 "Vegetables for Home Supplies," Beckett.
- 4 "Stove and Greenhouse Plants," B. S. Williams
- 5 "Orchids and Their Culture," B. S. Williams.
- 6 "Nicholson's Dictionary of Gardening."
- 7 "Chemistry of the Garden," Cousin, 1s.
- 8 "Botany for Beginners," Professor Henslow, 2s. 6d.
- 9 "Physiology of Plants," Soraur, 9s.
- 10 "Natural History of Plants," Kerner and Oliver, 5s.
- 11 "Insects Injurious to Orchard and Bush Fruit," Ormerod.
- 12 "Diseases of Plants," Professor W. Marshall Ward, 2s. 6d.

I wish I could have included in my list many excellent books on practical gardening, which vary in price from 1s. to 2s. 6d., but have been obliged to cut them out in making the final selection, because their contents have been treated of on a broader basis in works included in the list.—H. D.

It is a difficult problem to choose a dozen "best" books, but a dozen not at all expensive might include the following, which will afford, with current garden literature such as the Journal, much help to enquirers:—

- "The Fruit Manual," Hogg. (Second-hand booksellers).
 - "Treatise on Manures," Griffiths.
 - "The English Flower Garden," Robinson.
 - "Manual of Fruit Culture Under Glass," Thomson.
 - "Pictorial Practical Fruit Growing," Wright.
 - "Trees and Shrubs of Great Britain," Loudon.
 - "Manual of the Coniferae," Veitch.
 - "Manual of Forestry" (at least vol. i., ii., iii.), Schlich.
 - "Vegetables and Flowers," Sutton.
 - "Dictionary of Gardening," Cassells.
 - "Orchid Cultivator's Guide Book," Bunberry.
 - "Greenhouse and Stove Plants," Baines.
- R. P. B.

SWEET WILLIAMS.—One of the happiest—we had almost said fragrant, and that would have been true—memories of youth is that which shows us a hedged-in garden with a "green" (or patch of lawn), big Black Currant and Gooseberry bushes, a Plum tree and Honeysuckle (half intermixed) on the gable-end of the old home, and a glorious border of Sweet Williams! They ruled the place, they were everywhere; and how numerous were the shades of colour in their sparkling flowers, for the surface of the petals shines. Ah, well, fragrant memories. But this recalls us to the present point, which is to say that Messrs. Sutton and Sons have not overlooked Sweet Williams in their efforts for improvement. What huge massive blossoms! These are splendid bedding plants, and beds of a good crimson, or a selected white by itself, or in combination with another plant either for harmony or contrast, is commendable. There are many shades of colour in "Sutton's Superb" strain, as salmon, deep pink, cerise, &c.

British Birds.

By George Abbey.

THE birds that inhabit the British islands, their waters and lands, play an important part in pisciculture, arboriculture, agriculture, and horticulture, therefore a few remarks on their respective proclivities may be useful to those uninitiated in the general habits of the respective species, and principally as regards the nature of their food, upon which their helpfulness or otherwise in the several cultures mainly, if not wholly, depends.

With the birds it is solely a question of food, and with man and his cultures it is absolutely a matter of crops—fish, trees or timber, grain, fodder, roots, beef, mutton, pork or bacon, milk, butter, cheese, fowls and eggs, plants, flowers, fruits, and vegetables. The food of many birds is wholly composed of insects, that is they are insectivorous. Some birds live partly on insects or invertebrate creatures, and partly upon vegetation, that is they are omnivorous. Other birds subsist almost exclusively upon vegetation—the plant, the seed of wild or cultivated crops, that is they are herbivorous. Other birds, again, feed entirely upon flesh, it may be that of enemies of crops, or even on cultivated subjects, that is, they are carnivorous (raptors).

Against the insectivorous birds “no stone can be thrown,” for they are unquestionably paramount as preserving a balance between vegetation on the one hand and insect ravages on the other hand; indeed, it is questionable if vegetation could exist without them other than in very restricted cultures and by an enormous outlay in insecticides.

For the omnivorous birds much may be advanced in their favour from their feeding largely upon weeds and weed seeds, as well as consuming an untold number of pests, commonly called insects, that otherwise prey on useful crops. Indeed, only a just estimate can be formed by counterbalancing the injury they commit against the good they do, not in respect of any particular culture, but in regard of the whole of cultivated crops.

The herbivorous birds are like herbivorous animals, wholly antagonistic to vegetable cultures, and happily there are few species that come in this category.

Carnivorous birds are very tantalising. To the forester and gardener they are the “pink of perfection,” for they prey upon the worst enemies of his crops. To the farmer the birds of prey are both abetting and depredatory, for they pounce alike on game as upon poultry. To the pisciculturist the fishing birds are equally tantalising, inasmuch as they make no distinction between cultured and uncultured water, between foes and friends.

In a brief digest of birds of the British islands, regard will be mainly concentrated on their food, and this is really the crux of the bird question, for the stomach rules the world, especially in that of aves or birds, for in order to live they must feed, and their food is had at either or both the cultivator's advantage or prejudice. Food, therefore, affords the soundest basis on which to estimate the merit or demerit of birds from a cultural standpoint, hence they will be referred to mainly as affecting gardens and pleasure grounds, fruit plantations and orchards, yet not regardless of their influence for good or evil in the fields, woodlands, commons, and waters.

For convenience the different species will be collated under the headings: Resident, or those birds that inhabit the British islands throughout the year. Migratory, or those birds that visit this country at certain times of season either for breeding or feeding purpose.

Resident.

Insectivorous or Harmless.

THE HEDGE ACCENTOR OR HEDGE SPARROW (*Accentor modularis*) is one of the commonest British birds, somewhat resembling the common or house sparrow. The nest is built in hedges and thickets, and contains five blue eggs, the nest being commonly selected by the cuckoo for depositing an egg, the young from which ousts the fledgless hedge sparrows, and is itself fed by the foster mother on insects, largely in the caterpillar stage. This simple, unobtrusive, and confiding bird is one of the most valuable in a garden, field, and wood, as it feeds almost entirely upon insects; the young feed largely on caterpillars, and are free from any damage to useful crops. It is common about dwellings, especially in winter time, and in severe weather most grateful for any crumbs bestowed by the housewife outdoors when snow and frost prevail.

THE WREN (*Troglodytes parvulus*) frequents hedgerows, thickets, woods, and homesteads, hopping about fearlessly, jerking its puny little tail, and playing its antics, mostly of a food-searching nature, under the eye of man. The nest is built in any convenient cranny, on hedge banks, an Ivy-covered tree,



J. Veitch & Sons.

Coleus thyrsoides. (See page 200).

the thatch of a barn, or any secret warm place. The nest is usually of even shape, always curved outside with some material resembling the colour of the objects round it, such as green moss, if built among moss-clothed stems, or lichen, if built on a rock or in the fork of a withered branch. The eggs, six or eight, are white, speckled with reddish brown. It is entirely insectivorous, ever searching for insects in nooks and corners where scarcely any other bird comes.

THE COLE TITMOUSE (*Parus ater* or *britannicus*) is common in Britain, inhabiting Pine plantations more than blue and great tits. It is coloured black, with white patches on the neck and cheeks; the breast is white, and the belly pale fawn. It feeds upon insects or their larvæ, caterpillars (in season) forming its principal food, these being the sole food of the young. In winter, when hard pressed, it feeds on the berries of the Woodbine and seeds of thistle, hardhead, &c.

THE MARSH TITMOUSE (*Parus palustris*) closely resembles the cole tit, but wanting the white spot on the nape of the neck. Its food consists of insects or their larvæ, similar to the cole tit, and has been observed to feed the young twenty times an hour with caterpillars. It inhabits marshy situations, osier beds, &c.

THE LONG-TAILED TITMOUSE (*Parus caudatus* or *Acredula rosea*) is easily distinguished by the length of its tail. Its nest of oval shape, entirely closed, except one hole in the side, and of beautiful construction, lichen covered outside and lined with feathers, is the receptacle of from ten to fourteen very small and delicately spotted eggs. The food of young and adults is entirely insectivorous, and though mostly resorting in woods and plantations, frequently visits hedgerows and field trees, also fruit plantations, orchards, and gardens, where it consumes countless numbers of aphid eggs and of other pests; indeed, I have known the long-tailed tits clear a plantation of Black Currants completely of black aphides.

THE GOLD-CRESTED WREN (*Regulus cristatus*), one of the smallest of British birds, has its favourite resort in Fir plantations, where it hops or runs about or round the branches head downwards, in search of insects lurking under or in crevices of the bark. The nest is of great beauty, usually placed on the under side of a branch, sheltered by overhanging foliage. The eggs are from six to ten in number, very small, and of a reddish white colour. The food of young and adults is entirely

insectivorous, as also is that of the fire-crested wren (*R. ignicapillus*).

THE COMMON CREEPER (*Certhia familiaris*) may often be seen running spirally up the trunks of trees and probing the bark with its bill, its food wholly consisting of insects. Its nest is made in a decayed tree, and the eggs, from seven to nine in number, are grey, with dusky spots. It is very valuable on account of destroying insects on the large branches and boles of trees in woods, hedgerows, and pleasure grounds.

THE GREEN WOODPECKER (*Geothlypis trichas* or *Picus viridis*) may often be seen in woods and pleasure grounds, tapping the trees with wonderful rapidity, usually running up the trunk in a spiral direction, and in descending keeps its head uppermost. It occasionally devours ants and their "eggs" and other ground pests, but mostly confines its attention to trees, and is invaluable for destroying the larvæ of the bark beetles, especially that of the Elm-bark beetle (*Scolytus destructor*).

THE GREAT SPOTTED WOODPECKER (*Picus major*), and the **LESSER SPOTTED WOODPECKER** (*Picus minor*) are far less common than the green woodpecker, and seldom seen, though inhabiting large woods. They feed on insects or larvæ, procured from decayed trees, and also on berries and fruits that grow wild. The eggs are laid in a deep hole excavated in a tree where the wood has decayed, such as broken-off branch-place, or where a large fungus has been on an apparently healthy tree.

THE GOLDFINCH (*Carduelis elegans*, or *Fringilla carduelis*) is a very beautiful creature, and its nest is charming, usually made of wool and down from various plants, and often placed at the extremity of a spray. The eggs are small, of a whitish tint, spotted with orange brown. Its young are chiefly fed upon caterpillars, particularly those that exist on Crab or Apple trees, not infrequently breeding in orchards. It is extremely useful where thistles abound, as they do too commonly, not only on waysides, but in fields and woodlands, even neglected gardens, as it feeds on the seeds, hence the name of thistlefinch; also on the tufted seed of the dandelion, groundsel, knapweed, ragwort, and burdock, even on plantain and grasses, hence quite harmless and useful beyond compare. Remember, not in cages.

THE KESTREL OR WINDHOVER (*Falco tinnunculus* or *Tinnunculus alundarius*) is not uncommon, thanks to keepers not overcome by mistaken zeal for game preservation, and others who confound this extremely beneficent creature with the sparrowhawk. The nest is usually built in the deserted mansion of a crow or magpie, and the eggs, four in number, are of a dark reddish brown. It feeds mainly upon field mice or voles, preferring this food to all other, though not averse upon a pinch to frogs, lizards, slow-worms, beetles, and perchance a small bird.

Unquestionably, the kestrel is of incalculable service to the farmer and forester, yea, and gardener, for from the grassy woodland glades and meadows the field mice or voles pass to gardens and work no end of mischief.

THE LAPWING OR PEEWIT (*Vanellus vulgaris* or *cristatus*) is very common, or rather was, for it has been seriously decimated by the collecting of its eggs for table use in some parts of England, and mostly affects low-lying land, though not uncommon in moorland districts. It chiefly subsists upon slugs and snails, wireworms, beetles, aphides, the larvæ of various insects that infest grass, Turnips, Wheat, and other crops, and other pests, feeding chiefly in the evening when the depredators of useful crops are mostly on the prowl. It breeds on marshes, moors, meadows, and fallows. The olive-coloured eggs, with black spots, are usually four in number, deposited in a mere hole in the ground, with a few bits of dried grass, bent, or rushes at the bottom. On account of the insectivorous habits of Peewits they are sometimes kept in gardens where their services are highly appreciated.

THE BARN OWL (*Strix aluco* or *flammea*) is found in all parts of the British Isles much too infrequently, as it feeds almost exclusively on field mice or voles, mice that infest the farmstead, rats, larger beetles, and cockchafers, moths, and other injurious insects. In the case of feeding its young, as many as forty mice have been brought to the nest in one hour. Indeed, as a vole killer it holds first rank, and every way is of great utility to foresters, farmers, and gardeners. It lays its lily-white eggs, three to six, in church towers, barns, ruins, or old buildings, holes in rocks, or in hollow trees. The gamekeeper is its greatest enemy under the supposition that it kills young game, and the farmer is equally at fault in supposing that it is a depredator in pigeon cots.

THE TWITE OR LINNET (*Linola flaverstris*) frequents commons, neglected pastures, and feeds chiefly upon weed seeds, and is very partial to wild sorrel.

THE REDPOLL (*Linola rufescens*) frequents similar places to the linnet, and like it lives upon weed seeds, and is more partial to wild sorrel than any other British bird.

THE PIED WAGTAIL (*Motacilla lugubris*) may be seen in meadows, pastures, and fields, where cattle and sheep are grazing in order to get the insects attracted by these animals; indeed,

this bird is continually hunting for beetles, flies, moths, and aphides, also millipedes, snails, and slugs. Though the pied wagtails migrate from northern to southern parts of the kingdom in the autumn, and some leave this country for the winter, there are always pied wagtails to be seen during the winter months, especially in farmyards, except in the more northern regions. Breeding begins in the spring, and there are often two broods in the season. From six to eight eggs are laid, bluish white, with brownish or purple-brown specks, in a nest constructed of moss, dried grass, bent and fine roots, and lined with wool, feathers, and other soft materials.

THE GREY WAGTAIL (*Motacilla melanope*) is chiefly found in the hilly and grazing districts where there are streams and plenty of water. It subsists upon insects, and is very fond of fresh water molluscs, thus destroys quantities of the snail known as *Limnaea truncatula*, also *L. pereger*, and hosts of the scourge of sheep flocks the liver-fluke (*Distoma hepaticum*). All the wagtails devour the snails named, which they search for by brooks and ponds. It takes to southern parts of the country in the autumn.

THE YELLOW WAGTAIL (*Motacilla Raii*) is not a winter resident, but appears in March on marshes and grassland through England generally, but soon goes to cultivated fields and devours millipedes, wireworms, and other insects as turned by cultural operations. After breeding, the birds, young and adults, move to meadows, pastures, and marshes hunting for insects. In September or October the yellow wagtail leaves England for the winter, hence is a migrant, but included here for convenience and as a prelude to the—

Migratory.

Insectivorous or Harmless.

THE WILLOW WREN (*Phylloscopus* or *Sylvia trochilus*) is the first to arrive and last to depart, and foremost in destroying pests. It is common in every garden, busy from morn to eve, singing and anon devouring countless caterpillars, aphides, &c. Its nest is oval or roundish and entered by a hole in the side.

THE CHIFFCHAFF (*Phylloscopus collybita* or *Sylvia rufa*) closely follows the willow wren or warbler in arrival, and remains with us until about the middle of October. It is found in most of the southern counties of England and in Wales, but has not been noticed north of Northumberland. On its arrival it feeds on the leaf-rolling caterpillars that infest the leaves and opening buds of trees, and all summer long devours insects or their larvæ. The nest is oval or rounded, and entered by a hole in the side, and usually placed near the ground in a bush, or sometimes on the hedgebank.

THE WHITE THROAT (*Sylvia curruca* or *cinerea*) arrives in this country in the spring, and abides during the summer, few gardens, pleasure grounds, and copses failing to be enlivened by its singular and pleasing song. It is entirely insectivorous, feeding its young on small caterpillars. The small nest, mostly among Brambles or on a stump covered with overgrowths, contains five eggs, greyish white, thickly spotted with brown.

THE NIGHTINGALE (*Daulias luscinia* or *Luscinia philomela*) visits the groves of the south of England, and may be found, or rather heard, as far north as York during the summer months, and is entirely insectivorous or harmless. The male only sings, hence "sweet songstress" is not quite correct.

THE REDSTART (*Ruticilla phœnicura*) comes in the early summer, and inhabits the skirts of woods, copses, and pleasure grounds. It feeds entirely upon insects, and the young are chiefly reared on small caterpillars. The nest is usually placed in a hole in a wall or in a hollow tree. Eggs five, greenish blue.

THE TREE PIPIT (*Anthus trivialis*) visits copses, and is a ground insect feeder, but feeds its young on caterpillars, hence is sometimes selected by the cuckoo for laying an egg in the nest, which speaks more than a volume for its insectivorous habits.

THE SPOTTED FLYCATCHER (*Muscicapa grisola*) may commonly be seen in England and some parts of Ireland, but not frequently in Scotland, from May to September inclusive. It frequents orchards, gardens, plantations, and woods, and the banks of streams, where it feeds exclusively upon insects, though accused erroneously of eating fruit. The insects are taken on the wing, similar to swallows, sawflies being a favourite food. It takes all kinds of flight insects: moths, flies, beetles, and aphides. The parent birds have been known to bring food to the nestlings 537 times during the course of the day. The nest is placed in a hole in a wall or tree, or in the fork of a tree, on beams in out-buildings, ledges of rocks, in fruit trees nailed to walls, and on the stump of trees. Eggs five, pale green to bluish white, mottled with rusty streaks.

THE WRYNECK (*Yunx terquilla*) visits the southern counties of England, and is seldom seen in the west and north. It is very fond of ants, especially of the "eggs," and also frees boles and branches of trees of various insects, similar to the creepers and woodpeckers. The eggs, laid in holes of trees, are pure white.

(To be continued.)

Westonbirt House, Tetbury, Gloucestershire.

MANY of the great private residential domains of Middle England lie to the west, and the counties of Wilts, Gloucester, and Worcester have the larger share of famous gardens. Westonbirt, with which we are alone concerned in this article, has been a home of horticulture for over half a century, for the father of the present respected owner was one of the keenest gardeners and arboriculturists of his day. It has been told of him that he spent hours and days watching and studying his plants and trees, and knew the natural habitats and the histories of all, or nearly all, the many handsome subjects he gathered to his demesne. Nor was he alone in this specialised love and knowledge, for his wife, the late Mrs. Holford, was quite as keen as her husband, her tastes being those in which refined womanhood can most excel—namely, in the blending of forms and colours in the garden and in the home. Thus the acquirements of these two gentlefolk were united in their endeavour to make a beautiful garden; and they succeeded.

But ere we begin a brief description of the gardens as

they appear to-day (being still developed by Captain G. J. Holford, who has inherited the parental characteristics in this direction in no small measure), it will doubtless be of interest to localise Tetbury, and to delineate some of the features of Gloucestershire.

To begin with, the county is generally undulating, and much of it is hilly. A hill country is more stimulating to the mind, because it is fuller of varied scenes than a level country; but such country is by no means easy to traverse, and the local tourist between Bath and Westonbirt loses no time in discovering this.

The general features are pleasing—a succession of hill and valley relieving the landscape; whilst villages, farms, and mansion houses afford an agreeable variety in the route, though “the high, wild hills and rough, uneven ways” which in the days of good Queen Bess, as Shakespeare informs us, did “draw out the miles and make them wearisome,” prevent, even now, rapid travelling in parts of this high-land district.

In appearance the “Wolds” have a billowy aspect,



South view of garden and house, Westonbirt.



Shrubs and ornamental water, Westonbirt.

falling at intervals into valleys, through which the natural drainage of the adjoining lands is carried off; thus every dip has its rill, and every valley its brook. The sides of the hills abound with springs. The Thames has its sources from the springs in the neighbourhood of Gloucester, and I have surely read that its ultimate point of origin can be traced to one bubbling, restless spring.

The Cotswold Hills, which form one of the three main sections of the county (the others being (1) the low-lands, or vale, of 100,000 acres; and (2) the forest district of 40,000 acres), compose a range of considerable elevation, and consequently the harvest from off them is nearly a fortnight later than that of the surrounding country. The soil on the sides of the hills is said to be thin (a calcareous loam), while that of the valleys is fertile and good for Apple culture. Sheep rearing is quite an industry on the Cotswolds, and so many as 20,000 fat sheep were at one time brought to Cirencester market; possibly a like number may be still.

At Cirencester there is now a large and flourishing agricultural college, and the Forest of Dean, where the Government, through the Board of Agriculture and Fisheries, have started what may be called a School of Forestry, lies partly in Gloucestershire beyond the Severn, and partly in Monmouth, Wales.

As a county, it is much broken up, and at times it is difficult to tell whether one is on Gloucester soil or that of another shire, seeing that patches of Gloucester lie enswathed in four neighbouring counties! It is the seventh largest in England, with a reputed area of 1,244 square miles (796,731 acres), and though its geological and agricultural features are of much importance and interest, its political history from the time of the Roman occupation downwards is of still wider fame. The ancient city of

Gloucester has a story second to no English town, for its position placed it within the arena of events in all times. But when the Romans dwelt there, Gloucester was a land of dense forests and dismal swamps.

Tetbury, the post town for Westonbirt, is not a large place. It is situated on rising ground near the source of the Lower Avon, and is sixteen miles from Gloucester. Westonbirt is over two miles from Tetbury, and is situated in extensive grounds, the estate extending altogether to about 1,658 acres. The mansion, which was rebuilt in the Italian style by Vulliamy, in 1860, contains many valuable paintings, and is superb in its entire inner decorations. This manor, which is approached by a drive from the highway, was acquired by Sir Richard Holford, a Master in Chancery, descended from an ancient family in Cheshire, on his marriage with the heiress of the Crewes in the time of Charles II. Richard Holford, Thomas Holford, and Peter Holford, Esquires, owners of this estate, were successively Masters in Chancery between 1694 and 1804. A mediæval church, restored in 1841, stands in a shrubbery in the gardens. Its tower is placed in the middle of the building in the south side. There is also a well-executed monument, by Westmacott, to the memory of Robert Holford.

The mansion is surrounded by a great park of 400 acres, and looks out upon its beautifully kept grounds and terraces; while the ranges of glass houses, which have been much developed within recent years, are quite close by. From the orchid range one passes into the pretty Italian garden, around it to the sunken garden, and by a lengthened walk, having a fountain that disports goldfish on one side, the lake lying in another direction, is reached.

The garden is beautifully disposed, and is furnished with just the types and kinds of trees and shrubs that gladden the minds and hearts of all who find delight in arboreal

growth. The lawns are smooth and green, neatly shorn; the lake is relieved by a background, or screen of shrubs; while a place for alpine and other hardy plants is situated in a recess, as one might say, near by the ornamental water. Far in the opposite direction, back across the line we in imagination have just traversed, over in a corner of the park, there is a private nursery, and a visit to it showed that in this the Westonbirt garden had a splendid reserve. Here the new and rare trees and shrubs are placed for a season or more, in order both to test and acclimatise them ere they finally find a home within the garden.

The head gardener, Mr. A. Chapman, strongly advocates the formation of similar private nurseries by gardeners wherever it is possible. The soil first of all is drained (if clayey) and deeply trenched; paths are laid out; hedges or fences set; and a tool house is erected. The nursery is then ready, and it will be found one of the most useful places under the gardener's charge.

The main features, or, rather, subjects—and we can only deal in generalities—in the open grounds around the house include some wonderful Japanese Maples (*Acer atropurpureum*), 10ft high and 15ft to 16ft through. Their sisters, if the terms be allowed, are at Eastnor Castle, and elsewhere, for in the days of the late Mr. Holford there were four gentlemen, with himself, who had an agreement to exchange rarities among themselves for their mutual gratification. These gentlemen were Earl Ducie, Sir Philip Egerton, Earl Sommers (Eastnor Castle), and Lord Delamere.

And it is interesting to hear of other specimens in distant gardens, for the records of a number of them are known. On the terrace front of Westonbirt House stands a gigantic Sycamore, whose trunk at the base measures 21ft round. A diameter of 7ft is not very common; but this respectable

size pales before the patriarchal Spanish Chestnut at Shrubland Park, in Suffolk, whose mean girth is 36ft!

Westonbirt can also point to four handsome Elm trees which were brought a distance of five miles when they were over 60ft in height, and were successfully established. The object was to improve the landscape scene; and work of a similar nature was undertaken some years ago in the Edinburgh Botanic Garden, when Professor Isaac Bayley Balfour caused a number of mature Lime and Elm trees to be redispersed on rising ground overlooking the herbaceous plant garden.

Captain Holford's garden also contains one of the earliest Sequoias that were introduced from California, the specimen under notice being now 74ft high, but which came to Westonbirt in a small pot. More than this, we are told that Basset, the gardener who had it in charge, staged it at a Bath show as the best new exotic stove-plant, he having grown it in heat! Among some beautiful Cedars here, there is a *C. atlantica*, planted in 1847, though the first knowledge of this species was only obtained in 1844. A Cucumber tree (*Magnolia acuminata*) makes a goodly figure at 60ft. The base of its trunk is covered with climbing Roses.

The utility of certain Apples as ornamental trees in private grounds has frequently been emphasised in the papers, and the Beauty of Bath Apple is well worth growing for its lovely rosy flowers, even if it fails to become decked with fruit.

Westonbirt is renowned for giant Tree Pæonies, which are placed in bays formed by the Rhododendrons and other shrubs anywhere in the grounds. These Pæonies are as tall as a man: that is, they are 5ft or 6ft high, and their woody stems are carefully guarded each winter against the nipping tendencies of frosts. Sacking, or dry straw, or bracken



The Italian Garden, Westonbirt.

can easily be wrapped around them, and the pride of having such noble plants and gorgeous blossoms is ample repayment for the trouble.

Amongst other trees and shrubs in the garden, we may briefly mention as of interest the following: *Azara microphylla* with its shining dark green leaves; in this case it reaches to the unusual height of 14ft. Mr. Chapman observed that he prunes *Azara* rather hard, to induce strong new growths. The rock garden by the water, as we observed at the beginning, is distinguished by the uncommonly beautiful and large *Acers* in variety; while here also we find golden masses of the double flowered *Gorse*, a shrub which is very far from being justly appreciated for decorative effect. It is a warm, furnishing under-shrub, and succeeds on dry banks and amid loose stonework where only one or two other shrubs can grow; yet that is no reason why it should be starved. The *Phillyreas* are sacrificed—we can call it nothing else—to *Box* and *Bay*, and *Privet* and



Mr. A. Chapman.

other never-ending shrubs in hundreds of gardens, and while one must say nothing ill against these indispensable subjects, the day has surely come when a little greater variety might be arranged.

These remarks, however, are a homily aside. *Phillyrea intermedia* constitutes a large and fine feature here, and *P. latifolia* with its very handsome dark leaves is also present. Various species and genera of what are comprehensively called *Bamboos*, as well as some fine weeping *Hollies*, are other subjects that tend to make this garden one of exceptional note. *Thuyopsis dolabrata* attains fine, tree-like proportions in Devonshire, notably at Killerton; but in Gloucester, we think, it does not usually form very good "leaders." One Westonbirt specimen, nevertheless, is 25ft high. Here, however, it is well sheltered by tall trees. *Carpenteria californica* is sixteen years old, and has the advantage of a wall. *Nandina domestica*, which withstands the frosts of Haddingtonshire (at Tynninghame), and is grown under glass at Kew, Surrey, 400 miles south, is seen doing well in the open air here in Gloucester. The huge, spreading leaved, superlatively handsome *Dimorphanthus mandschuricus variegatus*, for which, alas! there is no shorter or better known name, impresses the visitor by its dignity; and the true *Berberis fascicularis* are other subjects one can hardly pass by. A *Yew*, said to be 300 years old, stands near the fountain.

One could name a long list of interesting plants of the foregoing nature, for if it has not been said before it may be said now, that Captain Holford's garden is celebrated especially for three things: its trees and shrubs, its orchids, and its *Amaryllis*. Beyond this, there is the remarkable pinetum; but this being at a distance, and our time being limited, a visit could not be made.

Every feature of gardening is in excellent condition, as proof of the knowledge and care of the head gardener. The orchid houses, of course, are under the charge of Mr. H.

Alexander, and their contents were described at some length on pages 441 and 442 of this journal for May 21 last year. We will, therefore, merely observe that since then the visitors to the Drill Hall exhibitions of the Royal Horticultural Society have seen additional evidence of the quality of these truly noble flowering plants, some of which have carried away certificates. The collection is being gradually added to, for the esteemed owner—who is a member of the R.H.S. Council—is very partial to the charms of orchids.

From orchids to wild gardening is an awkward move, but we may compromise and use the better term—the naturalisation of hardy exotic plants (*Crocuses*, *Squills* and spring bulbs of all sorts). These, together with *Primroses* and hosts of other plants such as were mentioned recently in the notice of Oakwood, Wisley, are a brilliant adjunct to both grass and ground.

Under glass? Well, from March till May you will assuredly find *Amaryllis*; but not content with that, Mr. Chapman retarded some bulbs last year, and then startled everybody at the Shrewsbury Show in August. Never was a man more enamoured by the charms of a genus. Compared with the collections in which Mr. Chamberlain interests himself at Highbury, and Lord Rothschild at Tring, that of Captain Holford can easily claim precedence. But though our notes on them are somewhat extensive, in the interests of the patient reader it is necessary to hasten onward without further dilation.

Let us turn to *Strawberries*—*Strawberries* forced. A picking of 15lb at once in the month of March requires considerable numbers of plants. Six fruits only are taken per plant; and it may at once be said that for weight, size, colour, and flavour the Royal Sovereigns here tasted could not be bettered: they were of exceptional merit. The plants are grown on shelves, not suspended from the roof, but by the side of low span houses, close to the roof glass. *Strawberries* in March are early, but to have fruits of these in October is a triumph at the other end; and we were privileged to see quantities in both months; the late ones being at Sproughton, Ipswich. The variety *British Queen* is grown in the open ground, the land being heavy.

The indoor fruit trees, of course, were not at their fruiting stage, but good bearing subjects were noted. There are only indoor borders; the houses are well equipped. *Roses* form a feature indoors, and *Violets* in frames were good. At the lower end of the "cutting" garden there is a huge spreading specimen of *Fortune's Yellow Rose* which was brought from Italy and planted where it has since so successfully established itself.

This "cutting" garden—so-called because quantities of flowers are here to be cut for decorations—in the early part of the year contains beds of bulbous *Iris*es (21ft by 4ft), *Darwin Tulips*, *Anemones*, *Ranunculuses*, and *Narcissi*. Summer flowers, as *Pæonies*, *Poppies*, *Pyrethrums*, *Delphiniums*, &c., follow on.

The *Tulips* and the *Narcissi* represent the best varieties, some of them very costly. Amongst *Narcissi* were noted *Seagull*, *King Alfred*, *Torch*, *Lucifer*, *Albatross*, *Weardale Perfection*, and *Mme. Plomp*; while of the *Tulips* there were *Clara Butt*, *Bouton d'Or*, &c., and what is uncommon, a considerable collection of excellent florists' varieties.

The fruit and kitchen garden is well cropped, and large demands are made upon it, as, for instance, when four dozen *Cabbages* are sent off in one day. Stone fruits do well, for though heavy, there is naturally a large quantity of lime in the soil owing to the geological formation of the district. Mr. Chapman prunes his *Apricots* hard, and has no qualms about their gumming. In *Peaches* he is able to point to the record of one 13oz fruit, and his average number of fruits per tree (indoors) is twenty-four dozen (288). The trees, we must state, cover roughly 2,000 square feet of superficial area. *Apples* are rather subject to canker here, and late frosts have usually to be suffered.

Though a personal visit to the Pinetum was a pleasure outside our circumstances, yet I am enabled by the kindness of Mr. Chapman to append some records, and his contribution here follows:—

"The Pinetum is situated about half a mile south-west from the mansion, and is divided into several large avenues. The acreage is about 120 acres. It contains large clumps of choice *Rhododendrons*, a complete collection of *Coniferae*, *Acers*, *Oaks*, *Cratægi*, and other choice trees and shrubs. Amongst the fine specimens are *Abies Albertiana*, 100ft high; *A. Douglasi*, *A. orientalis*, *P. monticolor*, *P. excelsa*, *P. Ayacahuite* (?), which cones freely every year, *P. Strobis*,

P. Laricio, *P. grandis*, *P. lasiocarpa*, *P. Nordmanniana*, *P. concolor*, *P. violacea*, *P. cephalonica* (an extremely fine specimen), *Taxodium sempervirens*, *T. distichum*, *Retinospora squarrosa* (quite glaucous, planted in a moist situation), *R. obtusa*, *R. pisifera*, and the golden forms.

"*Cupressus Lawsoniana* and its varieties are planted in clumps, and there are several fine specimens of various Junipers. Huge masses of the golden and cardinal Willows, associated with large masses of the Dogwood (*Cornus alba*), are most effective during the dull winter months with their crimson and yellow barks. These are under the care of the forester, Mr. Thomas Rathay."

In conclusion, it is a pleasure to be able to present Mr. Chapman's portrait and some biographical notes. From boyhood his heart has been in gardening, and as a lad he used to spend a great deal of spare time in the market garden belonging to his uncle, Thomas Beach Chapman, at Brentford, Middlesex. His apprenticeship of four years was served in the gardens of Lord Boston, Hedsor Park, Buckinghamshire, which was then noted for its indoor and outdoor fruits, tropical plants, shrubs, trees, and flower gardening. And at the expiration of probationship, Chapman was given charge of the vineries for eighteen months. While there he also had the opportunity of visiting the gardens of Dropmore and Clevedon, the former noted for its fine collection of trees and shrubs, the latter for its spring bedding, which still remains unsurpassed. After this he served four years in the gardens of Greenlands, and went later to Messrs. Veitch and Sons' nursery at Chelsea, passing through several of the departments. Finally he went to Westonbirt as foreman, and succeeded the late Mr. Lucas as head gardener, a position he has held for upwards of twenty-eight years.—J. H. D.

Saxifraga Burseriana.

Bulbous and tuberous plants are by far the most numerous among early flowers, but there are a few of other habit, including the dwarf evergreen plant known as *Saxifraga Burseriana*, one of the neatest and most beautiful members of a genus which does so much to grace and make attractive the rock garden. It has tufted rosettes of foliage dotted over with the crimson flower buds, or spangled with its milk-white flowers, and delights in a dry and well drained soil. It loves the full sun, yet if dry at the root it soon shrivels up under the rays of the orb in which it delights when under suitable conditions. With a little simple cultivation, less by far than we would give to a *Geranium* or a *Fuchsia*, *Burser's Saxifrage* will give pleasure for a long period. Its ideal compost is one composed of one-third of thoroughly decayed leaf mould, one-third of good loam, and one-third of rather gritty sand. It should be planted either in early autumn or in April, after the flowering is over. Planting should be firmly done, with the soil well up the rosettes of leaves, as shallow planting is one of its banes, and neglect of top-dressing. This top-dressing should be done at least twice a year. When the plant begins to grow bare and "rusty" in the centre, this is a sign of approaching dissolution. Then a compost of peat and sand ought to be thoroughly worked in among the rosettes, and afterwards watered. Should the brown or rusty colouring still extend, it will be necessary to lift the plant and propagate from it by planting the healthy rosettes in fresh soil. The larger the plant the more charming it is. The finest of *Saxifraga Burseriana* is *S. B. major*, which is not very easy to obtain true. It is two months earlier in bloom, in mild seasons and in warm districts often being in bloom at the New Year, and has much brighter crimson buds, and the blooms are considerably larger. A native of a fairly widespread habitat on the European Alps, this pretty Rockfoil was first introduced in 1826.—S. ARNOTT.



The Sunken Garden, Westonbirt.



White Cloud Stock. (See page 215).

Artificial Manures in the Garden.

BY J. J. WILLIS.

THERE is no question of greater importance to the present-day gardener than that of judiciously feeding or manuring his crops. In order that the horticultural industry may be successful it is not enough to raise plants, it is necessary that their production shall result in a genuine profit. Many gardeners are able to accomplish this object because of the knowledge they have acquired through long years of experience rather than because they possessed in the beginning of their work a definite knowledge of the fundamental principles involved in plant growth. One of the first needs in the use of artificial manures in the garden is a more or less definite knowledge of what chemical substances they are composed, and of the effect which particular ingredient will have on plant life.

Chemical Elements Needed by Plants.

Careful studies and experiments have shown that plants actually take from the soil at least ten chemical elements which are required for their normal growth and development, but as a general rule the gardener need trouble himself about four elements only, viz., nitrogen, phosphoric acid, potash, and lime. These are the substances most liable to be exhausted in the soil, because they are taken up in large amounts by the plants that are grown.

The chief functions of manures, whether natural or artificial, is to supply in an available form either one or more of the essential elements of plant food. The use of artificial manures in horticulture is rapidly increasing; it should, therefore, be thoroughly understood by the gardener that these concentrated fertilisers supply plant food just as well as ordinary farmyard or stable manure. The fact that plant food exists in substances other than those which are familiar to the gardener is no evidence that it may not be just as good, or even better, than when contained in his home-made, natural manures.

For example, the nitrogen that may be applied in the form of nitrate of soda or sulphate of ammonia exerts no different effect upon the life of the plant than that which may be acquired from the original soil or from so-called natural manures. The same is true of phosphoric acid and of potash. In their concentrated artificial form they feed the plants in exactly the same way, and exert the same functions as those contained in the soils themselves, or those found in farmyard "muck."

The form in which plant food exists when applied does not necessarily imply that they are stimulants rather than food, though frequently, because of their solubility, the plants are able to absorb them more readily, and thus, by the rapidly increased growth, encourage the belief that an undue stimulating effect accompanies their use.

Perhaps no other single subject relating to horticultural science has been studied of recent years more fully than the question of the use of artificial manures, and these studies have resulted not only in the discovery of new materials, but in their better preparation for use as plant food, which greatly increases their effective use in the garden. Experience has shown that even our most fertile soils in their natural conditions contain too little active food to insure maximum crops

of the best quality. In these times earliness and edible quality of the vegetables the gardener cultivates must be the important factors that determine the course to be pursued.

Farmyard and stable manure meet the needs of most garden crops, inasmuch as practically perfect fruit, flowers, and vegetables are grown by good cultivation with dung alone, but under the present system of raising crops "out of season," the question arises whether the same results cannot be attained more economically by the assistance of artificial manures, which, again, can be used to meet certain special difficulties of soil and situation in a manner that would otherwise be impossible. In the first place farmyard manure is bulky, and slow in its action.

In the second place, the fertility elements contained in it are not in the best proportions. As a rule, dung is poor in phosphoric acid, potash, and lime, and rich in nitrogen, and its use in sufficient amounts to meet the needs of the plant for the mineral elements results in a waste of nitrogen. Third, the constituents contained in dung are not in sufficiently active form to provide rapid and continuous growth without an excessive application, which frequently results in the case of many plants of an abnormal growth of vines or stalks.

For many garden crops economical production requires that the natural manures should be supplemented by artificial fertilisers; in this way the form and amount of the individual constituents can be regulated to meet the needs of different plants.

It may be said that profit from the use of concentrated forms of plant food is measured to a large degree by the perfection of soil conditions, which usually are entirely within the power of the gardener to control.

Nitrogenous Fertilisers.

NITROGENOUS FERTILISERS.—Those manures which have nitrogen as their predominating element generally promote growth and vegetative development of the plant, leaf, and shoot rather than flowers and fruit. Nitrogen is the most expensive constituent of manures, and all things considered must certainly be reckoned as one of the most useful, because no plant is ever produced without an available supply of this element. The form in which nitrogen exists in vegetable and animal matter is called the "organic form." This term as applied to nitrogen covers a whole series of substances, and does not indicate a uniformity, either in content or quality of the nitrogen, as in the case with artificial manures; hence, associated with the knowledge of form of nitrogen, when it exists in organic products—such as guano, dried blood, bonemeal, shoddy, &c.—must be a knowledge of whether the material contains a very considerable amount of nitrogen, and whether it is likely to be readily changed and thus become available as food for plants.

GUANO.—This material when pure is certainly one of the most valuable of the nitrogenous fertilisers. Average samples contain from 5 to 8 per cent. of nitrogen, and from 20 to 35 per cent. phosphate of lime. It is estimated that $1\frac{1}{2}$ tons of nitrogenous guano is equal to about thirty-three tons of average farmyard manure, the nitrogen of the guano being much more active than that contained in dung. Owing to the very excellent results that were obtained from the early use of Peruvian guanos, many attempts have been made to improve the lower grades obtainable at the present day by addition of sulphate of ammonia, &c.

These rectified guanos, while containing nitrogen in good forms, cannot entirely substitute the original guanos owing to the impossibility of adding ingredients identical with those existing in the natural product. The fact that nitrogenous guanos gave such good results is an evidence of the advantage of introducing different forms into artificial mixtures. At the present time we have "best guano," "fish guano," &c. These products are inferior to Peruvian guano in their content of nitrogen, though they are capital manures, and give excellent results with plants growing in pots, or to outdoor plants in early spring, when crops naturally find a difficulty in obtaining supplies of nitrogen from the soil.

SULPHATE OF AMMONIA contains about 21 per cent. of nitrogen. It is one of the most concentrated forms in which ammonia can be used, and at the same time one of the most active and readily available, although its ammonia has to be converted into nitrates by means of the micro-organisms of the soil, before the plants can use it. Sulphate of ammonia mixes well with bonemeal, wood ashes, potash salts, and superphosphates. Some extensive growers of Grapes have reported that they get better coloured fruit, and better quality, with ammonia than with nitrate of soda, provided there is no lack of mineral elements in the soil, especially of potash and lime. Sulphate of ammonia *by itself* tends to produce leaves. Ammonia is useful for foliage plants, and a capital manure for Poinsettias. Lettuces respond readily to ammonia.

NITRATE OF SODA is an exceedingly active nitrogenous manure, supplying plant food of the most concentrated and direct kind, its action is both feeding and stimulating. The average percentage of nitrogen in nitrate of soda is from 15 to 16 per cent. This substance is probably more generally used for horticultural purposes than any other material except farmyard manure, as a carrier of nitrogen to vegetation. It supplies no potash, nor phosphoric acid; consequently, for nitrate of soda to produce its full effects either the soil must be in good condition, maintained by a plentiful use of dung, or an artificial mineral supply must be supplemented.

As a rule, it has been found that horticultural crops which require the most labour per acre are those which yield the highest profits from the use of nitrate of soda, that is to say, early crops of vegetables, or those produced "out of season." Thus 100lb of nitrate of soda will furnish more nitrogen to plants early in the spring than can be got from eight to ten tons of farmyard dung. Nitrate of soda can be mixed with potash and phosphatic manures as required.

DRIED BLOOD.—One of the chief products from which organic nitrogen is derived for commercial fertilisers is dried blood. It is one of the most important, because one of the most concentrated and richest in nitrogen of the organic nitrogenous manures, and it is one of the best, since its physical character is such as to permit of its very rapid decay in the soil during the actual growing season of plants. Red blood, which commands the highest price, is reasonably uniform in composition. It contains from 13 to 14 per cent. of nitrogen, and traces of phosphoric acid. The black dried blood is of a lower grade, and may range in nitrogen from 6 to 12 per cent.; it also contains considerable phosphoric acid, frequently as high as 4 per cent. This manure can be used successfully to most crops that require a steady supply of plant food, such as Vines, Roses, Chrysanthemums, Potatoes, Celery, and the like.

FISH GUANO.—Dried ground fish contains from 7 to 8 per cent. of nitrogen, and from 6 to 8 per cent of phosphoric acid. It can be used with advantage for pot plant culture, flowers, Onions, Carrots, &c.

HORN AND HOOF MEAL.—Another source of nitrogen is the dried and ground trimmings of animal horns and hoofs. The nitrogen in this material is likely to be slower in its action than that of ammonia or nitrate, or even dried blood. It is a lasting manure, giving up its nitrogen slowly, being well adapted for Vine and fruit culture, including Tomatoes and Melons.

Phosphatic Manures.

Several varieties are on the market, including bonemeal, crushed bones, superphosphates, basic slag, &c. Bones are true phosphatic manures, although they contain a small proportion of nitrogen. The composition may range from 2 to 5 per cent. of ammonia, and from 20 to 25 per cent. of phosphoric acid. The treatment of bone with acid reduces the percentages of ammonia and phosphates, but makes the latter more quickly and completely available, decomposing very rapidly in the soil; it is specially suitable when early vegetable growth is required.

Mineral superphosphate is the cheapest source of soluble phosphate; the ordinary quality

contains from 25 to 28 per cent. of phosphate made soluble. Superphosphate, however, is frequently made containing as much as 35 to 40 per cent. of soluble phosphate; these are to be the most highly recommended for the garden, as they are practically free from sulphuric acid. This acid element tends to "club-foot" and "finger-and-toe" diseases in old, rich kitchen gardens.

Concentrated phosphatic manures are especially valuable for the purpose of ensuring rapid and vigorous early growth of plants. In the case of kitchen vegetables and all seedlings, they are of great advantage in making these plants quickly elaborate a widely distributed and deeply penetrating network of healthy roots. Plants of every kind, flowers, fruits, and vegetables are greatly benefited by a liberal supply of phosphatic manure, always provided the soil is in good heart otherwise.

BASIC SLAG has recently come much into favour as a material for providing the soil with a lasting supply of phosphoric acid, especially in the lower layers, such as Vine borders and in fruit growing; also for ornamental trees and shrubs. It furnishes a good dressing for lawns, cricket grounds, and paddocks, as it encourages the growth of clovers and the finer quality of



Foxgloves for the garden. (See over page.)

grasses. Basic slag is useless to soils lacking humus matter or potash. It may be used in preference to superphosphate on all wet, peaty, and rich garden soils on account of it containing free caustic lime, which neutralises the organic acids of the soil. It contains from 14 to 20 per cent. of phosphoric acid. It may be mixed with nitrate of soda and potash, but not with sulphate of ammonia.

Potash Fertilisers.

POTASH MANURES.—Four kinds of potash manures are to be found upon the market—kainit, sulphate of potash, muriate of potash, and nitrate of potash. Kainit is a crude potash salt, and the commonest form in which potash is now employed as manure. It contains about 12 per cent. of potash, 25 per cent. of magnesia, and 35 per cent. of common salt. This manure is particularly suited for the growth of Potatoes, as it increases the weight and improves the quality of the tubers. It may be used for Vines, fruit trees, flowers, lawns, Asparagus, and Mushroom culture. It may be mixed with superphosphate, nitrate of soda, or ammonia salts.

SULPHATE OF POTASH supplies about double the amount of potash to that of kainit; it is especially helpful to all leguminous crops, such as Peas, Beans, Scarlet Runners, and similar plants. Vines, fruit trees, Roses, and Chrysanthemums will develop sturdily and bloom efficiently with an available supply of potash combined with some phosphatic manure.

MURIATE OF POTASH is now largely used as an effective carrier of potash, but it should not be employed on soils lacking in lime. **NITRATE OF POTASH** gives both nitrogen and potash; it is a useful manure for supplying garden plants in a combined form with the necessary quantity of readily assimilable potash, and of easily available nitrogen.

APPLICATION.—Phosphatic manures may be used at the rate of 6lb to 8lb per square rod when the land is trenched. Kainit at the rate of 5lb, and sulphate or muriate of potash at 3lb to 4lb per square rod every second year, preferably putting it on in winter or early spring. In some gardens dung cannot be obtained; in such cases use fish guano, rape cake, or dried blood, at the rate of 8lb to 10lb per square rod; with these should go from 4lb to 6lb per square rod of a phosphatic manure, and potash every year or so. And as the plants begin to grow a little active nitrogen in the shape of nitrate of soda or sulphate of ammonia may be used.—J. J. WILLIS, Harpenden.

FOXGLOVES IN THE GARDEN.—Simple subjects, to be sure, are Foxgloves, but there's a heap of interest about them, and their beauty is majestic. Graceful, tall, stately, with a prodigality of floraison, their shining, but inwardly hirsute, bells are the homes of fairies—at least, the storybooks and folklore say so, and need we rashly turn away these cherished fictions? Let us have the Foxgloves, with white, and pink, and purple, and spotted cheeks—a pennyworth of seeds will give us dozens—and place them in bold groups among the ferns and the Primroses that grow in the glades. A photograph by Messrs. Carter is on the preceding page.

TUFTED PANSIES.—Seedlings or rooted cuttings which have been wintered in sheltered places outdoors have grown and rooted so freely in the light fertile material afforded them, that they are now ready to lift and plant in permanent places, being hardier than those in frames. The latter, however, may be fully hardened now by withdrawing the lights from over them entirely, gradually, of course, subjecting them to the exposure. They will soon then be ready to lift with abundant roots to plant and give an early crop of flowers. A generous soil well dug and enriched with leaf soil and decayed manure is the best for both Pansies and Violas. Seeds may be sown in pans or boxes under glass, or in a cold frame, the seedlings being pricked out singly to strengthen. On page 216 we illustrate a thrifty and very floriferous tufted Pansy, which was photographed in Messrs. Kelway and Son's nursery, the firm cultivating these Pansies very largely.

SCHOOL GARDENING.—Our pages have been the frequent medium of information with reference to English school gardening during late years. In last week's issue it was shown that "classes in horticulture are being conducted in various evening schools in Yorkshire" (page 180), and that the teachers in Board schools themselves are being trained so as to be able to sufficiently guide a class in the commoner duties of the garden. Messrs. James Carter and Co., of High Holborn, London, have kindly given us the use on this occasion of an illustration which will very forcibly, we trust, bring home to the minds of all our readers the fact that good work is being done in parts; for nothing is more likely to keep the rising generation in touch with gardening and the country than a knowledge of both, secured in youth. At the Council School, Lowestoft, there is a practical gardener as instructor in co-operation with the school teacher.

The Board of Agriculture and Fisheries.

Its Officers, Work, and Management.

BYOND the information supplied through such publications as "Hazell's Annual," and, to a less extent, other year books, the agricultural and horticultural public have few opportunities of learning anything of the comprehensive business that is transacted by this Department of the British Government. The facts that are summarily given in this article may, therefore, help somewhat to lessen this prevailing unenlightenment. To quote from "Hazell's Annual": "The Board of Agriculture for Great Britain was established in 1889, and consists of the Lord President of the Council, His Majesty's principal Secretaries of State, the First Commissioner of the Treasury, the Chancellor of the Exchequer, the Chancellor of the Grand Duchy of Lancaster, and the Secretary for Scotland, with such other persons as His Majesty may from time to time think fit to appoint during his pleasure. The powers and duties of the Privy Council under the Diseases of Animals Acts, of the Land Commissioners for England under the Tithe Acts, the Copyhold Act, the Inclosure Acts, the Metropolitan Commons Acts, the Drainage and Improvement of Land Acts, or under any other Act; and of the Commissioners of Works under the Survey Act of 1870, were transferred to the Board by the Act of 1889. The expression 'agriculture' is defined to include 'horticulture.'"

THE CHIEF OFFICERS OF THE DEPARTMENT ARE

The President: the Right Honourable the Earl of Onslow, G.C.M.G. Private Secretaries: Alexander Goddard, Arthur Pakenham.

The Permanent Secretary: Sir Thomas Henry Elliott, K.C.B. Private Secretary: Arthur G. L. Rogers.

Assistant Secretaries: Major Patrick Geo. Craigie, C.B.; William Somerville, D.Sc.; Arthur Wellesley Anstruther; and Walter Ed. Archer.

Amongst the other chief officers under this division are the legal advisers, chief veterinary officer, agricultural analyst, and the chief clerks of the Whitehall and St. James's Square offices. Over 260 persons are engaged in the offices of the Board, exclusive of Kew Gardens, the Ordnance Survey, and the local inspectors and commissioners.

The work of the Board is divided into branches as follows:—

4, WHITEHALL PLACE.

- | | |
|---|-------------------------|
| 1—Chief clerk's branch and indoor branch of animals' division | 3—Veterinary department |
| 2—Outdoor branch of animals' division | 4—Intelligence branch |
| | 5—Education branch |

3, ST. JAMES'S SQUARE.

- | | |
|--|--|
| 1—Chief clerk's and inclosure and commons branch | 4—Survey, land improvement, and land drainage branch |
| 2—Copyhold and tithe | 5—Law branch |
| 3—Statistical | 6—Accounts branch |

DELAHAY STREET.

- 1—Fisheries branch.

ROYAL BOTANIC GARDENS, KEW.

The sections at Kew comprise the head office (Sir W. T. Thiselton-Dyer, K.C.M.G., C.I.E., F.R.S., Director) The executive office (W. Watson, Curator) Mr. J. Bean, Assistant Curator The herbarium and library, with the following staff:— W. B. Hemsley, F.R.S. (Keeper) G. Massee, F.L.S., and Dr. O. Stapf, F.L.S. (Principal Assistants)

J. F. Duthie, B.Sc., F.L.S. (Assistant for India) N. E. Brown, A.L.S., R. A. Rolfe, A.L.S., C. H. Wright, A.L.S., S. A. Skan, and T. A. Sprague, B.Sc. (Assistant) Miss M. Smith (Artist) JODRELL LABORATORY.—Dr. D. H. Scott, F.R.S. (Honorary Keeper) MUSEUMS.—J. M. Hillier (Keeper) J. H. Holland, F.L.S. (Assistant)

Twenty-three police are employed in the gardens.

THE ORDNANCE SURVEY OF THE UNITED KINGDOM, with its headquarters at Southampton, is under the Board of Agriculture, and employs an aggregate of 2,575 persons. The Ordnance Survey has twelve field divisions, each with its headquarters in some prominent city or county town, as Edinburgh, Belfast, Carlisle, Derby, Shrewsbury, York, Cork, and Red Hill (Surrey).

The Animals Division administers and watches the Diseases of Animals Acts, 1894 to 1903; Markets and Fairs (Weighing of Cattle) Acts, 1887 and 1891; all orders of the Board relating to diseases and transit of animals (including the Swine Fever Order of 1894); the importation of Dogs Order of 1901, and superintends the inspection of railway stations, markets, sale-yards, and cattle trucks. Also the general supervision of all regulations of local authorities, county and borough, under the Acts and Orders above referred to, and advising local authorities in this connection. The Inspectors of the Division report on all matters coming under their observation which concern agriculture generally, and diseases among animals in particular.

In like manner the Veterinary Department applies itself to the inspection of foreign animals landed at ports, and inquires into or investigates outbreaks of certain diseases in animals in Great Britain. The Fisheries Division, amongst many other duties, lays before Parliament an annual report from inspectors regarding sea, salmon, and freshwater fisheries. The same Division carries out investigations into the natural history and diseases of fishes; has fish-hatcheries and laboratories; and

considers the protection of undersized fish, the effect of methods of capture, and questions arising under international investigations in the North Sea.

The Intelligence Branch has an immense amount of correspondence, indexing, filing, and summarising work to do. It undertakes the translating and digesting of information from the foreign agricultural Press and from veterinary and scientific publications. Preparation of reports for Parliament of proceedings in Britain under the Sale of Food and Drugs Acts, the Merchandise Marks Acts, and the Fertilisers and Feeding Stuffs Act. Collecting and filing information from the technical and general Press relating to home agriculture and fisheries. Editing and preparing matter for the Journal of the Board of Agriculture. Compilation, from foreign trade reports, of statistics of the trade in animals of foreign countries. Summarising the returns of analyses made under the Fertilisers and Feeding Stuffs Act, 1893, and correspondence connected therewith. Indexing, and filing in library, of Parliamentary

arising out of the regulation and inclosure of commons under the Acts, transactions under the Universities and College Estates Acts, sales of glebe land, reapportionment and redemption of tithe-rentcharge, enfranchisement of copyhold land, and the sanctioning of charges on land for works of improvement, &c.

The Board hopes in time to be able to publish other agricultural produce returns as it does now in the case of corn under the Corn Returns Act of 1882. These returns are published weekly, quarterly, and annually in the "London Gazette" (the official organ), and are of very great importance to the industrial community.

The Geological Survey of the United Kingdom is conducted by the Director of the Survey under the Board of Education, but the arrangements for the advertisement and sale of the maps and memoirs of the Geological Survey of the United Kingdom are in the hands of the Board of Agriculture and Fisheries.



Active young gardeners at the Council School, Lowestoft. (See page 212.)

WHERE PRACTICAL GARDENING FORMS A PART OF THE SCHOOL CURRICULUM.

J. Carter & Co.

and agricultural publications, and reports of Foreign and Colonial Departments of Agriculture or Fisheries. Preparation for publication of leaflets, Press notices, and special reports on insects and fungi, experiments, and other subjects. Business and correspondence connected with distribution of leaflets and special publications. General correspondence with applicants for information relating to railway rates, co-operation, insect attacks, experiments, agricultural industries, and other subjects.

Some have said the State does not administer grants for purposes of agricultural education. Much business and correspondence connected with the administration and allocation of the Parliamentary grant for agricultural education in England and Wales is transacted by the Education Branch, and their annual report forms a bulky volume.

The space at our disposal is insufficient to allow us to explain the working of the Board much further at this time. It may be pointed out, however, that we, as agriculturists and horticulturists, hardly appreciate the amount of work

While fisheries, and the industry of fruit culture and horticulture have of recent years been brought within the direction of the Board, the Royal forests still remain under the Office of Woods. Nevertheless the President of the Board has demonstrated his interest in forestry by encouraging the training of a few foresters in the Forest of Dean. The writer inquired of Sir Thomas Elliott (to whom he acknowledges his indebtedness for the information in this article) whether the Board would not extend its sympathy in a practical way to the Royal Horticultural Society. "Possibly we might," was his reply, "but so far that body has not asked for help. At the same time," he continued, "the public are apt to expect too much from us. We are in the position of a son who depends upon his father for an income. The Treasury only allow us a very limited sum, and this we make the most of." The progress of the Board since its foundation has indeed been exceedingly satisfactory, and we can rest assured that its officers (who are all proud of their Department) will still maintain its work on lines of efficiency.

INSECTICIDES.

AN insecticide is any composition prepared from ingredients destructive to insect life. To be effective and available for use on plants, it must be fatal to insects without in any way injuring the host. This is really the crux of the whole matter, for the difficulty is not compounding an insecticide that will destroy insect pests, without at the same time causing injury to the plants infested by them. A brief digest, therefore, of some articles in general use as insecticides will be interesting, suggestive, and useful.

Arsenic.

This is known to chemists as arsenious acid, or white oxide of arsenic. In its simple form it must be regarded as a very unsafe insecticide, not only as regards injury to the plant, but also from its colour allowing it to be mistaken for other substances, and its fatal effects on human and domesticated animal life. Its use, however, in its various compounds, known as arsenites, enables the cultivator to combat successfully some of the worst enemies of his crops, such as caterpillars and adult insects biting and devouring portions of the plants. Such insects must be poisoned, and one of the most virulent poisons is arsenic. This, as white arsenic, is only used for destroying ants, when formed into a syrup with sugar as follows:—

ANT POISON.—Place 1oz of ordinary arsenic in an old iron pot with a quart of water, and boil until reduced to a pint, or a little more, of liquid, then add $\frac{1}{2}$ lb Demerara or cane sugar, and stir well. This syrup or mixture can be dropped on bits of glass or glazed earthenware, and placed about the runs and around the nests, or placed in saucers in the ants' haunts. This must be used with the utmost caution.

Arsenites.

Arsenites are compounds of arsenic in which arsenious acid unites with a metallic base. The principal arsenites used in destroying insects are Paris green and London purple.

PARIS GREEN, also known as "emerald green," is an aceto-arsenite of copper, a poisonous compound, verdigris,

copper, and arsenic. An average analysis shows: Arsenic 47.68, copper oxide 27.47, sulphuric acid 7.16, moisture 1.35, insoluble residue 2.34 per cent. It is applied either in a wet or dry condition. For making a dry mixture, commonly used in the United States, but not in this country to any appreciable extent, gypsum, flour, air-slaked lime, road dust, or sifted wood ashes may be used. The strongest mixture recommended in the United States is one part of Paris green to fifty parts of the diluent, but if the mixing is very thoroughly done, one part to 100, or even 200, is sufficient. Thus the strength of the mixture required depends upon the plants and insects to which it is to be applied, points upon which cultivators must exercise discriminative judgment.

In this country Paris green is almost always used in the wet state; indeed, the article is so fine and dangerous to handle in the dry state that it is advisable to procure it in the form of paste, Blundell's being the best make. It is practically insoluble in water, though some of the arsenic may be in a soluble form, therefore it is always important to add twice as much freshly burned and slaked lime as of Paris green in order to prevent injury to the foliage of plants or trees. The mixture, 1oz Paris green and 2oz slaked lime to twelve gallons of water, must be kept in a constant state of agitation, else the poison will settle, and the liquid from the bottom of the vessel will be so strong as to do serious damage, while that from the top will be useless. This is very important, therefore never charge the spraying vessel—a knapsack—without first thoroughly stirring and agitating the liquid in the preparing vessel.

The strength of the mixture should not exceed the proportions quoted, this being safe to use on Plum trees, but Apple and Pear trees are more tender in their young foliage, hence 1oz Paris green, 2oz slaked lime, and twenty gallons of water is an advisable and effective mixture. For caterpillars generally, and particularly those of the Winter Moth, spray just before the bloom buds open; repeat just after the bloom has set, and if caterpillars are to be seen afterwards, spray at intervals during the season. Spraying with Paris green, or arsenites, should not be practised on trees in full bloom, nor within six weeks of the time of picking fruit. In all cases the liquid should be applied with force in a very fine spray, just



Kelway's New Tree Pæonies.

Kelway & Son.

watering the leafage and other parts with the finest possible film of the mixture; then there is no danger of injury to stock or poultry in orchards.

Paris green may be mixed with Bordeaux mixture, thus combining a biting insect destroyer with a fungicide, but both articles are liable to injure Peach trees, and Bordeaux mixture, even dilute, is apt to injure the tender foliage of Apple and Pear trees. Paris green is not suitable for mixing with soap or paraffin washes, or with liver of sulphur (sulphide of potassium) solution.

LONDON PURPLE is an arsenite of lime obtained as a by-product in the manufacture of aniline dyes, or a waste material from dye works. Its composition is variable, as seen from the subjoined analyses: 1. Arsenic 43.65, rose aniline 12.46, lime 21.82, insoluble residue 14.57, iron oxide 1.16, water 2.27 per cent.; 2. Arsenic 43.65, lime 26.23, sulphuric acid 0.22, carbonic acid 0.27, moisture 5.29 per cent. It is a finer powder than Paris green, therefore remains longer in suspension in water, but is more liable to injure foliage than is Paris green, as the arsenic is often in a more soluble form. It may be used in the same way as Paris green, either in powder form or in water suspension, but is not quite so reliable; indeed, Paris green is to be recommended for general use. In the case of London purple, freshly burned slaked lime should be used as advised for Paris green, and if allowed to stand an hour all the soluble arsenic is more likely to be rendered insoluble than if used at once. The strength should not exceed 1oz of London purple to 12½ gallons of water, and for use on tender foliage 1oz London purple and 2oz slaked lime to twenty gallons of water. London purple should not be used on Peach trees. It may be added to Bordeaux mixture, and then the treatment with lime is not necessary.

ARSENATE OF LEAD is a prepared article made by combining, approximately, three parts of arsenate of soda with seven parts of acetate of lead (Marlatt). The arsenate, a fine white powder, remains easily in suspension in water. This substance has been used successfully by the Massachusetts Gypsy Moth Commission for the destruction of caterpillars at the rate of 1lb of the arsenate of lead to 15 gallons of water, half a pint of treacle being added to cause the insecticide to adhere longer to the leaves. Its chief advantage lies in the fact that it can be applied in heavy doses to tender foliage without injury. Authorities, however, differ as to the proper way of preparing arsenate of lead. Cousins* gives the proportions as 1oz of pure arsenate of soda and 3oz of white acetate of lead, and prepares the liquid with 16 gallons of water and 1lb of treacle. The arsenate of soda is dissolved in a little hot (or cold) water, and the solution poured into 16 gallons of soft or rain water. Then the acetate of lead is dissolved in some more water, and this solution poured into the 16 gallons of solution of arsenate of soda, and 2lb of treacle added to the liquid to make it stick to the foliage. It is better, however, to supplement the lead arsenate with a petroleum emulsion, 2lb to the 16 gallons of liquid, and thus grapple with sucking insects, such as aphides and mites (red spider), as well as biting pests. This wash is harmless to foliage and effective on caterpillars in a young state, but not so when the pests have reached a half-grown size. Early treatment, therefore, is all-important, alike to prevent damage to the plants, bushes, or trees, or to effect the annihilation of the pests. The lead arsenate solution is equally effective on slugworms or sawfly larvae as in the caterpillar of moths.—**EXPERIENCE.** (To be continued.)

* The Chemistry of the Garden." Macmillan and Co., London.



EVELYN.

LORD CHAS. BERESFORD.

Kelway's Delphiniums.

JAMES KELWAY.

THE SHAH.

SUTTON'S WHITE CLOUD STOCK.—Among spring-flowering single Stocks this one should have a place. The free growth, large flowers, and delicious fragrance of the dwarf plants (height 2ft) have caused it to receive marked attention at the Reading experimental grounds of Sutton and Sons. A photographic representation of a border covered with it appears on another page.

FOUR CHOICE DELPHINIUMS.—It would be entirely supererogatory, and unnecessary, to labour out testimonials in favour of Delphiniums, and taking it as a foregone conclusion that everybody agrees that they are unsurpassed for garden ornamentation, it will only be necessary in this place to describe the varieties named in Messrs. Kelway's illustration given above. These are four in number, namely, James Kelway, a very deep velvety violet-blue variety, with a large and showy white centre. It has had a first-class certificate. Secondly, there is Evelyn, with semi-double, deep blue flowers, tipped violet with black eye. F.C.C. R.H.S. Thirdly, The Shah, deep blue, veined with purple, having a white eye, and is semi-double. A.M. R.H.S. Lastly, Lord Charles Beresford, a single, sky-blue in colour, and having a white eye.

KELWAY'S NEW TREE PÆONIES.—One of the great features of Westonbirt, as our observations in another column will serve to emphasise, is its huge Tree Pæonies; and if our recommendation were acted on, there would be far more Moutan Pæonies in the kept-grounds of private policies ere this spring goes past. Placed in a sheltered nook or position, and partially protected from frosts, dampness, and cutting winds, especially cold ground winds in springtime, when new and tender growths are starting, there is no reason why these exquisitely beautiful flowering plants should not flourish everywhere. Messrs. Kelway and Son, of Langport, as we all know, have done pioneer work of a painstaking nature to improve these Pæonies, and their yearly exhibits at the Temple, Drill Hall, and Holland House Shows are well known to the majority of horticulturists. They have succeeded in making Pæonies, both singles and doubles, admired and grown to an enormous extent compared with a few years ago, and so far has enthusiasm risen in the United States that there is actually a Pæonia Association there. Hundreds, perhaps thousands, of Pæonies go from Langport to America, especially to the Northern States. This plant is most excellent, too, for gentle forcing, and roots placed in large pots now can be had in flower during April for the conservatory. It is a pleasure to have so good an illustration at our use as that on the opposite page, which should do more to commend the Tree Pæonies for use in the grass (or shrubberies) than any notice that we can give. In their "Manual" this year they make mention of a "new race" of white varieties.

A Quartette of Scoto-Americans.

By Dr. John H. Wilson, F.R.S.E., St. Andrews.

THE position of Scotsmen in the horticultural world has for long been one of distinction and honour. Their success in regions beyond the bounds of Caledonia has perhaps in no sphere been more marked than in that of gardening. The counsel laconically expressed in "Hold South" has been acted up to by many of the strongest of the northern race of gardeners, and in many instances the step has led to personal progress and the advancement of the profession.

In a visit to America a few years ago it was our privilege to meet some grand examples of the Scotsman who has answered the call to occupation of a wider sphere of duty. It is doubtful if any finer type could be named than the late Mr. William Saunders, superintendent of the grounds of the Agricultural Department at Washington. Mr. Saunders was born at Green-side Place, St. Andrews, Fifeshire, in 1822, his father being a gardener there. Young Saunders saw the foundation stone of the Madras College of St. Andrews laid, and he was one of the first pupils in that famous seminary. Having chosen the profession of gardening, he was apprenticed to it at a private place near Newburgh-on-Tay.

Mr. Saunders made a collection of the wild plants of the districts he visited, to the number of some nine hundred, including many mosses. Our friend's career in the United States was one of strenuous effort and great progress. He landed at New York on the 31st March, 1848, in his twenty-sixth year, and his first appointment was at Newhaven, Conn. Six years later he entered into partnership with Thomas Meehan, at Germantown, and the business became a large one, embracing as it did landscape gardening and hothouse building. Mr. Saunders' work as a landscape gardener was of the highest order, his name being associated in this connection with some of the finest parks and cemeteries in the States, as Fairmount Park, Philadelphia; Clifton Park, Baltimore; Gettysburg Cemetery, Pa., and the grounds of the Agricultural Department. His ideas were followed in terracing the western front of the Capitol, and he took a large part, along with Mr. Smith, the director of the Washington Botanical Garden, in planning and planting the parks and streets of that finely umbrageous city.

Among many achievements in introducing and spreading economic plants in the States, one of the most memorable was the introduction of the Navel Orange, often called the Washington Navel, into California. He secured a few young trees from Bahia, Brazil, and from these he raised stock for distribution.

Mr. Saunders' contributions to the literature of general horticulture, landscape gardening, and agriculture, were very numerous and of high value. His first article appeared in "Hovey's Magazine" in the year of his arrival in America, and he was for many years assistant editor of "The Horticulturist." His social sympathies were very marked, and found expression in the great part he took in the institution of the association known as the Patrons of Husbandry, or National Grange, an organisation which has a very large membership and wields great influence in the States.

In the same fair city we met another Scotsman, and one akin to Mr. Saunders in stalwart frame, commanding manner, and



Tufted Pansy. (See page 212.)

Kelway & Son



Kelway & Son

Petunias, new Double-flowered. (See page 217.)

keen enthusiasm—Mr. William R. Smith, the director of the Washington Botanical Garden. Strangely enough, Mr. Smith was a friend of Mr. Saunders when the latter was an apprentice and the former a journeyman in neighbouring places in Scotland. In his early days Mr. Smith knew St. Andrews well, and came under its academic spell so far as to seek private tuition in the evenings from a University student. It is a coincidence that at the present time we have in our evening class of elementary botany, held in the Madras College, journeymen from the same gardens as Mr. Smith was employed in fifty years ago. The Botanical Garden is in close proximity to the Capitol, and is a great public resort. The collection of outdoor shrubs is specially noteworthy.

In Washington we had the pleasure of spending pleasant hours in the company of Scotsmen representing the younger generation. It is very gratifying to tell that they are successfully emulating the older men and upholding the traditions of the professional training received in the land of their birth.

In course of time we reached the Pacific, and before long formed the acquaintance of "brither Scots" in San Francisco. One of our earliest visits was made to Mr. John McLaren, the superintendent of the Golden Gate Park. This famous public park stretches from the confines of the city to the seashore, a distance of over four miles. What a contrast is found when one ascends the higher parts of the grounds and looks to right or left over the adjacent country. The territory there is in great part a wilderness of sand, shifting by the gales, and incapable of supporting vegetation. The site of the Park was no better originally, and the greatest difficulty was experienced in binding the sand and rendering it a basis for the growth of ornamental plants. Mr. McLaren remembered well the splendid sand-binding qualities of several plants on his native coast of Ayrshire. He had a shipload, chiefly of Maram (*Psamma arenaria*), brought and planted on the foreshore.

A transformation of a marvellous kind has resulted from the experiment, for this plant is spreading with great rapidity, not only keeping the waves of the so-called Pacific from encroaching on the shore, but is gaining ground seawards in a very marked way. After the sand has gathered above the level of the beach, and is no longer liable to be washed away, it is planted with various conifers, Eucalypti, Acacias, and low-growing plants such as *Mesembryanthemums*. In time a top-dressing of earth is given, and the finer grasses are established. The best grass for the lawns is the Kentucky Blue Grass (*Poa pratensis*).

Mr. McLaren, when we visited him, had fourteen foremen

reporting to him daily in writing on the work of their several departments. Immense quantities of water are required throughout the long rainless summer to keep the wide lawns in the beautifully fresh condition one always finds them in. The artificial lakes, islands, and waterfalls are fine examples of the landscape gardener's art, many suggestions for these having been gained during a tour Mr. McLaren made on the Continent of Europe. A drive with Mr. McLaren to inspect his handiwork is an experience not soon forgotten, not only on account of the succession of delights which it affords from both æsthetic and botanical points of view, but also on account of the pleasant impression one forms of the strong yet genial personality of this typical pioneer in horticulture.

At the extreme opposite side of the city of San Francisco, and located, when we were there, in an establishment the very reverse of that just described, was another Scotsman whose name is one to conjure with in California—Mr. Alex. Craw, the State Entomologist. Mr. Craw's office was a small and unpretentious one indeed, situated close to the docks which fringe the land-locked and beautiful bay. Mr. Craw was trained to horticulture, but on coming to the West he was, fortunately for

position to introduce material to experiment with from all quarters of the globe.

It is with gratification that we look back on our intercourse, short as it was, with this quartette of Scoto-Americans. They represent four aspects of the profession of horticulture, and the success attained in each case is obviously associated with early practical training. Horticulture is progressing in all departments in the United States. Perhaps the most significant feature of its progress is the splendid provision being made for its present and future welfare by the institution of chairs of horticulture in the Universities. We need only mention Cornell University, where we had the pleasure of meeting with Professor L. H. Bailey. It made the visit all the more memorable to be shown how that monumental work, the "Cyclopedia of American Horticulture," was being produced under his editorship. A glance over its finished pages is sufficient to convince us of the virility and thoroughness with which the science and practice of horticulture are being fostered in that go-ahead country. To this end, we are assured, the influence of Scottish gardening, carried thither by such men as we have spoken of, has contributed not a little.



Webbs' Regina Tomato.

Webb & Sons.

California, led to take up the solution of problems of the highest importance to the State, namely, the checking of the ravages of insect pests.

It is impossible to gauge the value of Mr. Craw's services to horticulture in the State of California. It is clear that if some of the pests which he has been instrumental in checking, if not annihilating, had been allowed to spread and multiply, the loss to the great fruit industries of the West would have been very serious.

Mr. Craw has a responsible task. He inspects all cargoes of fruit and consignments of living plants from foreign parts, and if he detects any dangerous insects on these he either condemns the whole to be thrown into the sea, or burned, or arranges for fumigation or spraying, according to the nature of the pest. Every precaution is also taken to prevent the entrance of pests by land. But Mr. Craw has another duty, to spread information amongst growers as to methods of prevention and remedy, and to provide them with active allies. All and sundry are helped at the expense of the State to keep the upper hand of the insect hordes. We were greatly interested to see the arrangements which Mr. Craw had in his office for keeping up the supply of the natural enemies of the fruit-growers' pests, such as lady-bird larvæ and the like, and for despatching the useful little creatures by post to correspondents.

Mr. Craw is by no means an isolated worker. He is a potent factor in a great organisation, and shares in the progressive work which centres in the Agricultural Department at Washington. He is thus brought into touch not only with the most energetic investigators in America, but he is in a

TOMATO, WEBB'S REGINA.—It is our pleasure in this place to give prominence to a variety of Tomato which Messrs. Webb recommend. Their comments we give:—"This valuable Tomato is early and very prolific; it sets its fruit well out of doors, and also under glass, and is therefore of the greatest service for both open-air and house culture. The fruit is smooth, somewhat round in shape, of beautiful deep colour, and delicious flavour." The illustration (from Messrs. Webb) is from a photograph of one of the seed houses at Wordsley. We learn that their Coronation Tomato is in great demand.

DOUBLE PETUNIAS.—The Petunia has not yet caught the full attention which we think it is going to receive. There are signs that as a pot plant it is coming more largely into vogue, and really the named doubles are charming subjects. We have cultivated these for spring and early summer employment for many years, and given good light and a careful application of the watering-can, neither allowing them to become infested with aphides, fine sturdy plants can be hoped for. Two dozen distinct kinds are described in Kelway's Manual.

DOUBLE FRINGED BEGONIAS.—The bedding tuberous Begonias are now being started again for another season's display, and the selected tubers for pot culture are also being placed into position. Few flowers are lovelier than those of a well-grown (double) tuberous Begonia, and they are just the plants that respond to minute care and skill. It is, therefore a real pleasure to undertake their culture, and by the measure of success one has with them, so may be judged the skill of the person as a soft-plant culturist. Named doubles of all shades are now offered, and we are able to illustrate a good fringed flower from Messrs. Clibran's stock, as a type of double Begonia which, like the fringed American Carnation, is liked by many growers.

Potatoes and the Potato Boom.

THE prices given and taken for recent new varieties have caused us to wonder. Eldorado selling at £150 a pound, Sim Gray at £5 for a similar quantity, Discovery £1, Northern Star 3s., and dealers tumbling over each other in their anxiety to purchase reliable stocks of popular varieties! What does it all mean? Yet many have tried their hand at Potato raising, with loss rather than profit to themselves. Still, the question once more arises, What does it all mean? For no amount of manipulation of the markets will induce growers to pay fabulous prices unless there is at least a great prospect that the newcomers possess qualities infinitely better in some respects than do older ones. Well, it means, I think, this: that if we grow during wet seasons the varieties we have been accustomed to cultivate for their high quality or capacity to produce heavy crops, they succumb to the disease so badly as to make their culture unprofitable. Growers therefore fully realise that a real disease resister is worth paying a high price for, as the stock can soon be largely increased, and under similar conditions in regard to the prevalence of disease, the original outlay is repaid with splendid interest, if the disease resister continues to be such for a few years. No one expects them to remain so for long.

The great question, then, is, Are the newcomers the real disease resisters many claim them to be? Extremely contradictory reports have been circulated concerning them, and, putting aside the reports of interested parties, it is not a matter for wonder that so many conflicting statements have been made; for do we not all know that no other vegetable grown varies so much in different soils and districts as the Potato? Northern Star does not seem to have succeeded anything like so well in the South as in the Midlands. Several instances have come under my notice in which quite phenomenal crops have been obtained without the slightest trace of disease in the tubers, and therefore, in regard to these two important points, the Star is a "star" indeed.

I notice each year that reports of disease in Potato tops in the South are generally published a fortnight before we find any trace of disease in the Midlands, and as the disease does not usually affect the leaves until growth is almost completed, I am inclined to think that the growth being somewhat later here than in the South, our crops have a shorter dangerous period to pass through, during which time the disease may be working in the leaves, stems, and tubers. The coming trials of the National Potato Society will do a vast amount of good in clearing up this and many other points.

The thought will perhaps arise in many minds, What about the table quality of Northern Star? For I know it has been darkly hinted in some quarters that, although a heavy cropper, it is scarcely fit to eat. I do not often indulge in expensive dishes, but in order to test the matter to my own satisfaction I had a couple of tubers cooked to-day. They were grown on a light soil, and I can honestly say that in my opinion it is a much better Potato to eat than Up-to-Date, white in flesh, not quite so floury as some varieties, but excellent in flavour.

Sutton's Discovery (kidney) is certainly a much more handsome Potato than the Star, and it seems to have cropped and resisted the disease equally well. I predict its sterling qualities will win for it a great reputation among the best of recent introductions. Although I have a few tubers, I am more interested in increasing my stock than in testing its merits when cooked, but it has the appearance of a variety of good table quality.

In purchasing Evergood one undoubtedly gets good value for the money spent, as it is a grand cropper, and takes the disease but little. King Edward VII. I like very much, as the tubers are clean and shapely; but why it is often described as a round I do not understand, as the bulk of the tubers I have seen are decidedly kidney shaped. Sir J. Llewelyn and The Factor are two second earlies which everybody should grow, and Webb's Express and May Queen are, I believe, absolutely the two earliest kidneys in cultivation.

I also have a very high opinion of both The Challenge and Al as second early rounds, as both crop well, and the former produces tubers which are wonderfully even in size and clear in the skin.

Edgcote Purple, Mr. Bresee, and Peerless Rose are fine coloured kidneys for exhibition purposes, and Lord Tennyson, Purple Perfection, and Reading Russet are excellent coloured rounds.

Royal Kidney, Webb's Industry, Charles Fuller, Sensation, and Motor are all grand cropping late varieties, though, unfortunately, not disease resisters.

If by any chance we should happen to get hot summers during the next few years, it is quite probable that growers generally may be lulled into a false sense of security, and pay but little regard to the planting of disease resisters. It will, however, certainly be unwise to adopt such a course, for now that a disease-resisting strain has been struck, every effort

should be made to raise other varieties from such strains, so that by degrees old kinds may be entirely replaced by others which show no fatal weakness during unfavourable seasons.

So much has been done by hybridists in various branches of horticulture that it ought to be—and, I believe, is—possible to work steadily onward, till we have abundance of disease proof varieties of good table quality, and those who manage to accomplish so great a task will deserve well of the whole community, for they will not only add to the nation's wealth, but also to her security. So long as we have to rely upon many varieties grown to-day, every effort ought to be made to prevent disease, by allowing the tops ample room, not being too liberal with farmyard manure, using some artificial manure, and thoroughly working the soil.

The deluge of rain last year rendered spraying in many cases ineffectual, but I think the old plan of pulling up the haulms directly the leaves show the slightest traces of disease is not half enough practised, for it undoubtedly may be the means of saving many a valuable crop. I treated about forty rods in that way last year, and not more than 6lb of diseased tubers have been found among the produce, nor has any complaint been made in regard to the flavour of those used.—HORTICULTURAL INSTRUCTOR.

Odd Things in Garden Life.

IN the garden it frequently occurs, and especially when incursions are made into other gardens that things are met with which at once strike the observer as being odd, out-of-the-common, unusual. Particularly is this so in old-fashioned gardens, wherein may be found the ideas of ancestral times still preserved. If an inspection of horticultural buildings of a century's age is made, there will certainly appear in the construction many items of detail that give rise to the passing thought, How very odd!

Then large, heavy timbers were introduced as rafters to carry roof lights; these, like the principals, being heavily constructed, and with narrow sashbars almost invariably. A short time since I saw a partial conversion of the old type to that of the modern one designed by Mr. Challis, and recently illustrated from Wilton. Readers may easily understand how odd was an adaptation of very light purlins fitted on massive principals that had carried ordinary old-fashioned sliding lights. Needless to say, economy in expenditure was a prevailing factor in the reservation of these heavy timbers, when so much lighter supports would have better answered the purpose. I am not quite sure which presented an aspect the most strikingly odd—the view from the outside, or the internal scene.

Another old-fashioned idea was the use of thick rolled glass instead of that of a transparent clearness. We can only suggest that the fear of Vines being scorched by exposure to a clear sky gave rise to the adoption of glass, rolled or fluted, and through which the sun could give no shadow. We can point to an instance where such glass is still in use, and the probability is that the Vines growing beneath it would suffer very badly for a time were clear glass substituted for this old-fashioned make. The exigencies of time, a lower income and larger outgoings of the owner, account for the absence of a modern exchange, but remembering how great is the contrast between the appliances of the two periods, it is not a little surprising how good a response is obtained even now, odd though the system seems to be to visitors.

The early hot-water heating systems again give other instances which the present day probationer would consider odd. Instead of 4in and lesser sized pipes, to which we are so much accustomed, 6in seemed to be the favourite diameter, and these on being cut are found to be quite $\frac{1}{2}$ in in thickness, and often of greater density even than that. The pipes, too, instead of being arranged with a graduated rise to the farthest extremity, are disposed in just the opposite direction. The highest point occurs close to the boiler, and thus gravitation from this position back to the lowest return point on the boiler becomes a natural law.

In those remote days almost every house had its own separate boiler for heating, which permitted of this simple system of hot-water heating. With boilers of peculiar pattern, and flues more rustic than complicated, there was need of much stoking and coal smother ere the water warmed the external portions of these massive pipes and the cubic air space they were destined to agitate. What with smoky and small coal and many apparatus, young journeyman gardeners of those far-removed days and times have been described as better representing chimney-sweeps than gardeners, which no doubt was true enough.

Strange though it seems that with experiences varied and continued for so long a course of years perfection seems far removed, yet judged by the ambitions of active brains still being

exerted in evolving the latest, and of necessity the best. What a boon for coming generations of young gardeners when there will be no dust or clinkers, sulphur, and perspiring brows; when radium will do it all so cleanly and without stoking.

Some months have now elapsed since the memorable frosts of March and April of last year did so much damage among fruit tree blossom. At the time of the frosts, and indeed for some time later, the absence of fruit was attributed to frost's action absolutely. As time moved on, other reasons came forward, and odd though it must seem to those of clearer memory, the frost theory was dropped altogether, and instead of this the absence of sun in the previous year was made the dominating cause. I cannot believe the practical man can be carried away by such peculiarly odd theories when so many will remember the frequent daily pilgrimages made round the garden to examine the blackened flower and unexpanded flower-buds. One might almost be made to believe that we had suddenly found the British fruit tree had become impervious to frost; even at the critical time of blossom.

Were such a prospect assured, the foreigner would have to seek fresh markets for his future Apple crops, because the home grower would be able to compete more even-handed. Some trees and sorts fruited despite the absent sun vagaries; indeed, with us, though so many trees were bare of fruit, a few cropped almost to breaking point. These were Apples. Pears were not so resourceful, but all agreed to take a year's rest except a few on the sheltered walls. This idea will find its solution with the forthcoming blossoming time, which at the present moment promises again to be so bountiful.

There is something odd, and, indeed, something most ungenerously enviable, to many a private gardener after he has gone to the extra labour of excavating, draining, and constructing the Vine border, it matters not what its size, when he pays a visit to an establishment where Grapes are grown largely for the markets, to find that the only labour incurred in border preparation is simply trenching to a given depth, plant the Vines, and commence cutting Grapes wholesale the year after. Our ancestors would not, I am sure, believe it. Some of these had more faith in the virtues of a decaying body of a horse or cow buried in the Vine border; in those days, of course, made outside the house.

It is odd this fascination for mimicry in the customs of the garden; one man will do, or might I more correctly say he used to do, a thing because his neighbour had done so, and the faith was so strong that even making a cemetery of the Vine border was accepted as a well-worn and proved necessity. On reflection one is made to wonder how a Vine could produce sweet Grapes from such unwholesome root environment. No doubt to such practitioners, a possible extra size of berries, deeper colour, or a suspiciously enhanced flavour was at once accredited to the presence of animal flesh secreted in the border. Possibly there were no Local Government Board inspectors in those days.

Although we have now emerged from the Chrysanthemum season, and thoughts are turned again forward to future triumphs, it might be permissible to revert for a moment to the question of sports. True, the same value is not placed on the unexplained and unintelligible custom of the familiar "Mum" as at a quarter of a century back, but all the same, a sport from a sterling variety still maintains a value. It is odd that out of so many thousand grown, these freaks occur only in isolated instances, yet as far as is made known, the science of production is not entrusted to individual choice. Yet with the regularity of the passing years such treasures occur. Gardeners are resourceful it must be admitted—at least, among the recognised 10,000 there are some such; but the name of the one is yet obscure who can produce the Chrysanthemum sport at his own will and design.

We have recognised living champions in the several phases of gardening, but in the interest of the sportive Chrysanthemum there would seem to be no representative. It is strange that it should occur at all, and the more so that it should do so with the regularity it does, and yet be under the influence of no one privileged cultivator.

One might continue indefinitely recounting odd customs, ways, and means not only of the historic past, but also of our own day; but, like so many other subjects, one never knows until they search or reflect on the illimitable store there is deserving, if not actually claiming, a brief atom of passing thought in the interest they entail. There is so much fund that many chapters could be written in dealing with their varied interests, but in this twentieth century it may be said there is no time for retrospective thought, because so much demand is made on the future. However, as "G. H. H." once said, visions of the editorial blue pencil prompt a halt, and the signature of the author required without any further ado or comment, and which is only—W. S.

A CORRESPONDENT says:—"I thank you very much for my advertisement in the *Journal of Horticulture*, in which I have been successful in securing a situation, and am now engaged."

Societies.

Royal Horticultural, Drill Hall, March 8th.

A bright and seasonable exhibition was brought together on Tuesday last. Messrs. R. and G. Cuthbert, of The Nurseries, Southgate, staged Azaleas, Palms, and Japanese Maples. *Staphylea colchica* made a specially fine show. Barr and Sons, from King Street, Covent Garden, had a charming group of forced Daffodils (cut blooms), and many other subjects, including their mauve and purple *Primula obconica*s. Messrs. Cannell and Sons, Swanley, had excellent *Cyclamens*, and a large collection of Cacti. The Misses Hopkins, of Knutsford, Cheshire, had a set of their uncommon (old-fashioned but charming) double and single Primroses. Mr. John Russell, Richmond, staged bushy and also standard plants of *Prunus triloba* (double pink), also *Staphylea* and Azaleas. Mr. H. B. May had *Adiantum Mariessi* and *Farleyense* in perfection, and other splendid decorative subjects.

Messrs. J. Veitch and Sons, Limited, Chelsea, had *Loropetalum chinense*, *Primula kewensis*, *Rhododendron Veitchi*, and their improved hybrid *Clivias*. Mr. John R. Davis, West Wickham, Kent, brought forward *Begonia Gloire de Sceaux*, making



Clibran & Son.

Double Fringed Begonia. (See page 217).

a bright show in front of Messrs. T. S. Ware's novel cork-bark wall, with pockets into which were let Primroses, ferns, &c. From Messrs. Cutbush and Son, Highgate, came a splendid set of cut Carnation flowers, shown in their usual effective style. The white S. J. Brooks was here, also *Floriana*, carmine (new); W. H. Cutbush, crimson-carmine; Sir H. Kitchener, and others. Messrs. B. S. Williams and Son, Upper Holloway, had *Ribes atro-sanguineum album*, *Azalea mollis* in vars., Guelder Roses as standards and bushes, Lilacs, &c. Messrs. J. Cheal and Sons had alpine on rockwork, including the pretty magenta-purple *Sisyrinchium grandiflorum*, and the *Primula rosea*. Their blue Primrose was perfection. Messrs. Bull and Sons staged a collection of very floriferous *Azalea indica* plants; and Messrs. Cutbush were exceedingly strong in alpine. *Shortia galacifolia*, *Tulipa Kauffmanniana*, *Primula rosea*, *Saxifraga Grisebachii*, and *Muscari botryoides alba* were very attractive. Lord Aldenham, from Aldenham House (gr.), Mr. E. Beckett staged sprays of apetalous flowering trees—*Alnus incana pendula*, *Hippophaë rhamnoides*, *Alnus cordifolia*, *A. glutinosa*, *Coryllus Avellana*, *Garrya elliptica*, *Populus canescens pendula*, and *S. caprea*. This was an "educational" exhibit, with the additional quality of novelty. Ferns came from J. Hill and Son, Lower Edmonton. Mr. W. A. Cull, Bury Nursery, Bury Street, Edmonton, staged *Pteris Wimsetti plumosa*; and Mr. J. Douglas, Bookham, received a cultural commendation for *Saxifraga Burseriana major*.

Orchids.

Orchids were staged by Messrs. Hugh Low and Co., who had *Cœlogyne cristata alba*, *Cattleya Trianae Enfieldensis*,

Dendrobium Boxalli, *Angræcum citratum*, and others. Bull and Sons had *Lælio-cattleya Myra* and var. *pallida*. Mr. Walter Cobb (gr., Mr. J. Howes), Dulcote, Tunbridge Wells, had a cultural commendation for *Leptotes bicolor*; and Mr. H. T. Pitt, Stamford Hill, staged *Dendrobium aggregatum majus*. Mr. W. Thompson, Walton Grange, Stone, had some *Odontoglossums*. Sir T. Lawrence, Bart. (gr., Mr. W. H. White) had a cultural commendation for *Dendrobium "Luna,"* of *D. primulinum* type. Charlesworth and Co. had *Oncidium concolor*, L.-c. x *Haroldiana*, L.-c. x *Charlesworthi*, &c.—a showy group. Messrs. Cypher and Son were largely represented by *Dendrobiums Jamesianum*, *Backhousei*, *nobile nobilius*, *barbatulum*, and many others. Jeremiah Colman, Esq., had *Cattleya Schröderæ*, *Cyp. niveum*, *Odonto. crispum roseum*, &c. Mr. R. G. Thwaites, Chessington, Christchurch Road, Streatham, had well-flowered plants of *Dendrobium Wiganiae*, and others. Baron Schröder had a number of well-flowered orchids.

Messrs. T. Cripps and Son, Tunbridge Wells Nurseries, Kent, staged *Begonia Perle de Lorraine*, with the characteristic irregular leaves, plenty of branches, and pendent inflorescences of blush flowers.

Dendrobium melanodiscus gloriosum (Mrs. Haywood).—This resembles *D. nobile nobilius* except that the throat has a large dark blotch surrounded by orange. From Woodhatch Lodge, Reigate (gr., Mr. Salter). A.M.

Odontoglossum crispum Rossendale (J. Wilson-Potter).—Flowers of fair size, segments bending forward, with edges fringed. Each has a large amount of brown blotching and spotting over the lilac-white ground. From Park Hill Road, Croydon (gr., Mr. W. H. Young (?)). A.M.

Lælio-cattleya x Haroldiana (Charlesworth and Co.). Parentage: *Lælia tenebrosa* and *Cattleya Hardyana*.—A large and handsome flower, with bold open lip, with sinuous or wavy edge, velvety texture, and coloured violet-purple. The sepals are narrow bronzy chestnut, the petals terra-cotta red. F.C.C.

ORCHID COMMITTEE.—Silver-gilt Flora to Baron Schröder; silver Floras to Charlesworth and Co., J. Colman, Esq., R. G. Thwaites, and Cypher and Son. Silver Banksian to W. Thompson and Hugh Low and Co.

Feltham Gardeners'.

The Feltham, Bedfont, and Hanworth Horticultural Mutual Improvement Society, at their weekly meeting held Wednesday, February 24, had the pleasure of hearing Mr. Gregory, of Croydon, who gave a lecture, entitled "Gardens I have Visited," and he also added to the interest of the evening by providing a number of lantern slides from photographs of his own, depicting objects of special interest in the various gardens. A good number of members and friends thoroughly appreciated a very interesting and instructive lecture.—J. T.

Paignton Gardeners'.

At the monthly meeting of this gardeners' association last Thursday evening, Mr. J. Crathorn presiding, the president (Mr. A. L. Spens) made an interesting presentation to Mr. J. Langdon, the assistant secretary of the association. The gift took the form of a clock, weatherglass, and thermometer in one, a handsome and useful article, on which was an engraving setting forth the facts of the presentation. Mr. J. Vowell opened a discussion on the cultivation of Carrots for exhibition, going into the soil, seed sowing, and general cultivation.

Ipswich: Timber Trees.

At the last meeting of the Ipswich Mutual Improvement Society, held on the 18th ult., the hon. sec., Mr. J. H. Murgatroyd, read a paper on "Timber Trees, their growth, structure, and geographical distribution." The essayist first of all referred to the growth and structure of timber, pointing out by the aid of coloured diagrams the difference in structure between the wood of Dicotyledons and conifers, the formation of bark, and the means by which the stem of a tree increased in thickness. The second part of the lecture, relating to the geographical distribution of timber trees, was extremely interesting. The lecturer showed how the vegetation of the world was grouped into well defined zones of latitude, and the degrees of altitude in the various mountains were described, and the flora compared with the zones of latitude. At the conclusion of the lecture an interesting discussion was initiated by the president, Mr. R. E. Notcutt, and well sustained by several members.

The annual tea and social evening was held on the 25th ult., when about ninety members sat down to an enjoyable tea, followed by a smoking concert. The toast of "The King" was given by the president in a few happy words. The toast, "Success to the Association," was proposed by Mr. Warner and enthusiastically received, Mr. A. Creek, Mr. Morgan, and Mr. S. J. Batchelder briefly responding on behalf of the gardener,

trade, and amateur members respectively. Songs were contributed by Messrs. Hazleton, Cobbet, E. Creek, Dent, Dickenson, Godbold, Rudge, and several others, the comic element being largely in evidence.—E. C.

Ware Horticultural.

The fortnightly meeting of this society was held in the Vicar's Room on February 16. Mr. Gumbrell, gardener at Widbury, read a practical paper on the tuberous *Begonia*. He referred to the introduction of the *Begonia* into this country, and dealt with seed sowing and general culture, the restarting of the tubers, and gave hints on purchasing *Begonias*. There was a good show of flowers and vegetables exhibited. The committee regret the resignation of the late secretary, Mr. A. Pratt, who is leaving the neighbourhood, and trust the members will support their present secretary, Mr. George Gumbrell, of The Lodge, Widbury. Mrs. Basil Richardson, of Amwellbury, has again offered a special prize for table decorations at the autumn show.

At the meeting held on March 1 Mr. E. H. Palmer, of Bengoe, read a very interesting paper on the cultivation of *Chrysanthemums* outdoors.

Newport (Mon.) Gardeners'.

The first annual dinner and entertainment of the Newport Gardeners' Mutual Improvement Association took place at Collier's Restaurant on March 2. Colonel C. T. Wallis, who presided, was supported by Dr. Gratte, Messrs. J. Basham, A. J. Woodcock, E. Basham, F. Pinkard, D. Powell (treasurer), J. Pegler (secretary), and others to the number of sixty-five. Mr. D. Powell (treasurer) gave "The Gardeners' Mutual Improvement Association." He co-operated with Mr. Heath (Cheltenham) in founding the institution. Since the establishment of the association in 1895 it had worked substantial good. By meeting together the members were able to get better ideas about gardening, and a fraternal feeling was also promoted. Mr. J. Pegler (secretary) responded. He said that he, too, was one of the founders of the association, for he was elected secretary, and he remained so ever since. During the evening songs were contributed.

Reading Gardeners': The Potato in 1903.

There was a large attendance of members present at the last fortnightly meeting of the association, when Mr. T. Neve, of Sindlesham House Gardens, Wokingham, introduced the subject of "The Potato in Connection with the Year 1903." He noted the value of the Potato, the universal failure of the 1903 crop, the different varieties of Potatoes, spraying to prevent disease, and made the following suggested remedies to prevent disease, viz., to have an entire change of ground for growing the crop, using manures that are suitable for Potatoes, change of seed, give more thought to the early and second early varieties, and not put too much faith in the later kinds, and last, but not least, to obtain a Potato with a strong constitution. A very practical discussion followed in which the following took part: The President (Mr. Leonard Sutton), Messrs. Bright, Wilson, Fry, Slyfield, Powell, Judd, Exler, Stanton, Tunbridge, Lasham, and Professor Percival, who gave much valuable information on diseases, manures, spraying, &c. A vote of thanks was accorded to Mr. Neve, and also to the various exhibitors, viz., Mr. G. Berridge, who staged Marie Louise Violets; Mr. T. J. Powell for a basket of young Potatoes, picked from old tubers placed in the dark chalk arches at Park Place Gardens; Mr. W. Slyfield for some fine specimens of Up-to-Date Potatoes; and to Messrs. Sutton and Sons for a basket of Discovery Potato.

Trade Catalogues Received.

- R. H. Bath, Ltd., The Floral Farms, Wisbech.—*Select Plants and Seeds.*
- William Bull & Sons, King's Road, Chelsea.—*Plants, including Orchids.*
- W. Clibran and Son, 10 and 12, Market Street, Manchester.—*Farm Seeds.*
- J. Cheal and Sons, Lowfield Nurseries, Crawley, Sussex.—*Dahlias.*
- G. Herbert Hasyard, Charlottetown, Prince Edward Island, Canada.—*New Cactus Dahlias.*
- Hogg and Robertson, 22, Mary Street, Dublin.—*Book of the Farm.*
- William Sydenham, Tamworth, Staffordshire.—*Violas, Pansies, Chrysanthemums, Herbaceous Perennials.*
- Thomas S. Ware, Ltd., Ware's Nurseries, Feltham, Middlesex.—*New Hybrid Water Lilies, Roses, Clematis, Bog Plants, Bamboos, &c.*
- W. Watson & Sons, Clontarf Nurseries, Dublin.—*Garden Flowers.*



A Provident Society: Its Committee and a Question of Payment.

Will you kindly permit me, through your columns, to appeal to the members of the United Horticultural Benefit and Provident Society? The annual meeting will be held on Monday, 14th March, and I would urge members to come in strong numbers. I have recently heard that our committee have for years been attending meetings month after month, at not only personal inconvenience and loss of time, but also at their own expense. I have given notice of a motion which I trust will be supported unanimously, that the travelling expenses be paid, or rather that a fixed sum be paid, for attending general committee meetings.—A. J. BROWN, Chertsey.

The Darrah Collection of Cacti.

There is something perhaps typically corporational, if one may say so, in the deliberations of the Manchester Council Chamber on the question of finding fit quarters for the valuable Darrah collection of Cacti. The Parks Committee, it would seem, have to choose between Heaton Park and Whitworth Park; but the main and vital question is not at which of these twain the collection would be the more "serviceable"—a word with possibly an ugly utilitarian ring about it! The chief anxiety should be for the welfare of rare plants, accepted as a trust. Cacti should be housed where they will have the best possible light, the least possible smoke and other fumes, a place to call their own, and an expert in their culture to look after them. The public are an altogether secondary consideration in this case—in fact, an admittedly "negligible quantity." The few who truly love these most distinct and wondrous plants would follow them anywhere; but some of the City Fathers are reported to have said that "none but a few faddists would ever look twice at such plants," and that "at Kew the Cactus house is known as 'the chamber of horrors'!" The Darrah collection is worthy of all care; and though Cacti are in some ways long-suffering, yet the effects of this treatment are very marked and lasting, while in the rare and aristocratic family of "Pilocereus," the beautiful white hair that in different fair fashions clothes them is soon disfigured in a dirty atmosphere.—FRANCIS D. HORNER, V.M.H.

The Gardeners' Association.

The proposed Gardeners' Association has been very freely criticised, and happily it has survived the ordeal, and bids fair to become an established fact. In these criticisms a great deal has been said about the condition of gardeners, which condition is unsatisfactory; conditions have not advanced with the same rapidity as those of other professions, and the remuneration is not adequate to the knowledge and skill we must possess, or for the responsibility we must take. I have no hesitation in saying the gardeners of this generation are superior to those of the past, for they have had more advantages for acquiring knowledge, and they have in a more accessible form the sciences of botany, chemistry, and geology to assist them in understanding the principles that underlie horticultural operations and practice. They are thus consequently better equipped for their duties, and should command better conditions; but increase of remuneration does not always follow increase of ability.

In all departments of labour and commerce prices are regulated by supply and demand. The service of gardeners is in no way exempt from this rule, for the supply is in excess of the demand, and to that cause I attribute the ill-paid condition of the gardener of to-day. This has been brought about by gardeners themselves, to their own discomfort. Year by year apprentices are taken into almost every garden in the country, be it great or small; in many cases merely for the sake of the premiums that are paid; in other cases because they are indispensable. They pass through the various regulation stages, and ultimately require head places. Other ways and means there are by which anyone may enter the gardening profession, but they are insignificant compared with the one just stated. And were it not so, who is to prevent the amateur or other persons without training posing as professionals, or hinder them from becoming head gardeners? Open examination, though not perfect, is the only means so far devised for sifting the capable from the incapable, and for that purpose it should be adopted. Many people hold the idea that if a person has been trained in dual establishments he is therefore a skilful and competent

gardener; but this is not so by any means, and thus it is not safe to judge a gardener's ability by the great or small establishments in which he was trained. By all means let us have an association of gardeners for mutual benefit, but let it be on a broad and workable basis; and let us have a register of gardeners and gardens; but let us not forget to enlist the sympathy and help of those for whose pleasure and enjoyment the garden exists.—S. P., Wilts.

A Gardener and His Employer.

The advice you gave on page 189 to the young head gardener is sound and good. I hope he may profit from it. I find what you say quite correct, because I have been reduced to a small place, and my employer has given me far more necessary tools and seeds and manures to work with since taking more interest in gardening himself. I found it very hard to put up with at first, but I might have been with the unemployed had I taken the advice of some of our higher gardeners, who may, perhaps, benefit by the proposed Gardeners' Association.—"MUCH REDUCED."

Apple, Allington Pippin.

I agree with Mr. Ellison's remarks as to this Apple. I can get fair growth from Cox's Orange, but not healthy foliage or good fruit; so I got some grafts of Allington from Mr. Bunyard, and was pleased with the healthy foliage and eventually abundant crop which resulted. I was much disappointed when I found the Apples were simply not worth eating. I am giving it one more year's trial, but fully expect that I shall have to do away with it.—W. R. RAILLEM.

* * A number of letters are unavoidably held over.—ED.

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible, with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

The Post Office Savings Bank.

Having read in the Young Gardeners' Domain the several notes from the pen of "An Old Boy" to us chaps of the bothy, who have the same path to tread that our friend has no doubt already trod, let me say how pleased I am to answer his inquiries. It is well for us that we have someone like our friend "An Old Boy" to speak to us through the Young Gardeners' Domain. I have been waiting to see if an abler pen than mine would tell of what we are doing in reference to the advantages offered to us by the Post Office Savings Bank. My gardening career extends over twelve years, and I am very thankful to say that my experience of bothies and bothyites is very favourable. My first was in one of the roughest parts of a colliery district in Yorkshire, where I had the pleasure of meeting four young journeymen, each of whom, including myself, had savings bank accounts; also I may add that they were all, excepting myself, total abstainers, and with one exception non-smokers. I may truthfully say they were a jolly, good set of workmen.

My next place was in Sussex, and had three in the bothy, each of whom knew the value of his little account with His Majesty. In my present situation, although not living in the bothy, I have had the pleasure of meeting two young chaps working in the houses along with myself who also know how to take care of their pence. I myself always try to impress upon the younger lads working with me the principles which I have always found so useful to myself. I also bring before them the good advice offered us by our encouraging friend "An Old Boy," whose notes we always delight in reading. May "An Old Boy" live long to show us the "stepping-stones" (as he does) by the valuable hints he gives to us, and which he gained no doubt in the same school we are now in.—E. E. H.

What would "An Old Boy" have a young man to do if the latter is bent on pushing ahead? I am acquainted with a young man who started professional gardening late, without the aid of a bothy, yet his keen instincts, natural aptitude of grasping things, and his ready pen, have enabled him to push forward in social life at a rate surprising not only to himself, but to others also. Yet he frankly admits that he cannot begin to save money just yet, although he earns a good deal more than the average gardener of his own age, for the simple reason that he must be ever buying books and obtaining novelties for the purpose of gaining knowledge.—G.



Hardy Fruit Garden.

LABELS.—All recently planted trees should be at once supplied with labels more or less of a permanent nature. The paper labels supplied with the trees from the nurseries do not last long, and are liable to be blown away and lost. These should be replaced by metallic or wooden labels fastened to the trees with wire, allowing ample room for the branch, so that the wire may not cut into the bark in time to come. My own preference inclines to the use of Acme labels, as these are easily and always decipherable, and practically imperishable. Older trees may well receive attention at the same time, examining the wire ties and renewing or loosening them where necessary.

BUSH FRUIT.—Where Gooseberries are liable to attacks of red spider it is a good plan to begin operations against this pest in the earliest stages of growth. A mild insecticide may be sprayed upon the growths, and this is the best remedy I have yet found. A mixture of soot and lime in equal parts should be dusted over the bushes when damp from dew or rain. This dressing not only cleanses, but when washed into the land acts also as a stimulant to growth. Ply the hoe freely in dry weather; it is much better to commence in good time than to allow weeds to gain sufficient strength to cause hand weeding. The Currant bud mite, if apparent in plantations of Black Currants, may be kept in check by handpicking where only slight infestation has taken place, and if the work has not yet received attention there should be no longer delay in removing and burning all "big buds" to be found upon the bushes.

WALL TREES.—Many of these that have their roots some distance below the surface, and have become enfeebled, would derive considerable benefit if the upper soil at the foot of the plant could be cleared away down to the roots, replacing this with fresh turfy loam mixed with a small proportion of horse-droppings, to which, in the case of stone fruits, a small amount of lime rubble has been added. This would induce the formation of surface-feeding roots, and the blossoming and the bearing capacities of the trees might be considerably improved. Old trees are also greatly assisted over flowering period when given a thorough soaking of liquid manure when the buds are swelling.

BLACKBERRIES.—These growing on arches and arbours should have the old growths removed as recommended for Raspberries if not attended to in autumn, the young canes being fastened to their supports, and having the unripe ends of growth removed to a plump bud. Those grown for fruiting against wires or stakes should be pruned and trained according to the height of their supports. A mulching of manure will assist in producing strong, healthful growth for bearing the following season.

STRAWBERRIES.—On thoroughly well-prepared land young plants of these may now be put out in rows 2ft apart, and from 15in to 18in asunder according to the strength of the variety. Endeavour to lift the plants with good balls of earth, and, especially if of a light nature, make the soil firm around them. They should not be allowed to flower this season, but be induced to make strong growths and crowns for another year.—J. W., Newent, Glos.

Fruit Forcing.

MELONS.—The earliest plants in houses are now well advanced, and if stopped when they have extended about two-thirds across the trellis laterals follow, with fruit showing at the second or third joint. To ensure a good and prompt set of fruit afford a bottom heat of 80deg to 85deg, and sufficient water only at the roots to prevent flagging. This will arrest growth, and in combination with a rather dry atmosphere, a circulation of warm air passing through the house will favour the production of pollen. When this is ripe, fertilise the pistillate blossoms as they expand every day, and stop the shoots at the same time one joint beyond them. When the fruits commence swelling, earth-up the roots by placing warm soil against the sides of the ridges or hillocks. Apply water as required, but avoid a soddened condition of the soil, only maintaining moisture by sprinkling the paths in the morning and evening, and syringing lightly at closing time in bright weather. If a succession of fruit is required in the same house, deprive some of the plants of the flowers that appear on the

first laterals. Stopping those at the first or second joint will cause the sub-laterals to show fruit, which will be later and finer, owing to the increased vigour of the plants.

CHERRY HOUSE.—The main art in forcing Cherries is attention to the ventilation; a free circulation of air should pass through the house whenever the temperature exceeds 50deg, the amount of air being regulated by the condition of the outside atmosphere. Fire heat need only be applied to prevent the temperature falling below 50deg in the daytime, and to maintain a night temperature of 40deg to 45deg. Attend to fertilising the blossoms with a camel's-hair brush or a feather. Aphides generally appear just as the trees set their fruit. They must be destroyed, or they will ruin the growths and spoil the Cherries. Grubs also infest the foliage; one kind of caterpillar rolls itself up in the leaves, and can be extirpated by squeezing, but another encases itself in a web on the under side of the leaves, and they appear as if scalded, and from the foliage the pest makes its way to the flowers and devours them. The surest means of riddance is to examine the trees occasionally and destroy the grubs.

VINES: EARLIEST FORCED IN POTS.—The canes started early in last November will now have the fruit stoned and taking the last swelling. Surface-dress the pots with rich material, and feed with liquid manure. When the Grapes are evenly coloured supply water only, and just enough to preserve the foliage fresh and the fruit plump.

EARLY HOUSES.—The Vines have, as a rule, made satisfactory progress, but there are cases in which the Vines have started slowly and broken irregularly, a few bunches showing a tendency to blindness, and others twisting and twining in any but the right direction. In such instances a slight increase of temperature and a reduced supply of moisture for a short time may be beneficial. Thinning the berries should be kept well in hand, commencing as soon as those likely to swell freely can be detected, and as a rule thin well in the interior of the bunches, leaving room for the berries to attain their full size without wedging, and yet so full as not to fall out of shape when placed on a dish. Liquid manure applied to inside borders will materially assist the swelling of the Grapes after thinning, but it is best to vary the diet, giving a top-dressing of some approved fertiliser about every three weeks. A liberal supply of atmospheric moisture is also necessary, and, if moderately supplied with ammonia, it is beneficial to the Vines and inimical to red spider. It may be secured by sprinkling the border and paths with clear guano water, 1lb guano to twenty gallons of water, or, still better, supply a mulch of sweetened horse droppings a little at a time over the whole border, but too much at once will prejudicially affect the foliage. Sharp winds necessitate care in ventilating, so as to avoid sudden changes of temperature and moisture, and thus crippled foliage and rusted Grapes may be avoided. Air should be admitted with great care in such weather, closing early in the afternoon at 85deg, allowing an advance of 5deg, and from that point the temperature should gradually fall to 65deg at night. During the daytime the heat should be maintained at 70deg to 75deg when the sky is overcast.

GRAPES PAST THE STONING PROCESS ought to have copious supplies of liquid manure in a tepid state. Avoid the close stopping system until the trellis is evenly covered with foliage, as every leaf promotes root action and assimilates food, which it is necessary respectively to maintain active and as clean as possible for securing properly swelled berries; but remember that this also depends on the full exposure of every leaf to the light, therefore avoid the least tendency to overcrowding.—G. A., St. Albans, Herts.

Orchids: Cultural Notes.

Cattleya citrina is rapidly advancing for flower, the tips of the spikes being plainly seen in the young growth. As the new bulb is also forming, it follows that the roots will have to be kept moist to provide the requisite sustenance. No attempt to make this plant grow otherwise than upside down—as it appears—has been successful, for if potted with the points of the growth upwards it resumes its position directly the first new growth reaches the side of the pan or basket. The plant grows naturally on the under sides of large boughs of trees where the moisture reaches the roots, but where, owing to their inverted position, it cannot possibly enter the cup-like formation of the growths, when it would lead to decay of the latter.

After the flowers are past and the pseudo-bulbs are developed, the plants take a fairly long rest, and the best position for them during this time is in a cool, shady and moderately moist house where there is a constant supply of fresh air moving about them. Some ten or twelve years ago, when virgin cork was more used for orchid culture, I had a number of large plants of it some 2ft across growing on large pieces of this material, and these were kept constantly in the

Odontoglossum house suspended just below the ventilators, at an angle corresponding with that of the roof. These plants furnished well, and owing to the large number of leads made a fine show annually.

Constant watchfulness is necessary now in each department, as all the plants are waking up into growth as it were. In the warm house the early growths of *Dendrobiums* must be noted, and new compost given where necessary before these commence rooting independently. Small-growing block and basket plants that may have had the compost loosened during winter should be looked through and tidied up, a few pegs or ties put to any loose parts, and useless back bulbs removed. The scale insect is more active now than at any time in the year, the young insects seeking fresh pasture on the new foliage, which they soon disfigure.

The soft, woolly scale that especially attacks *Cattleyas* and *Lælias* and the Stock seed scale that affects *Cypripediums* and other tropical orchids are the most fecund in this family, and need the most constant attention. A couple of fumigations should also be given in the cool house, where thrips soon overrun *Masdevallias* and *Disas* if not checked. The yellow form is especially troublesome to the *Masdevallia* flowers, which they soon ruin if allowed to run over them.—H. R. R.

The Flower Garden.

ROCK PLANTS.—A selection of plants for furnishing rockeries should consist of a number of low-growing subjects of a trailing or creeping habit. Small rooted specimens or divisions may be planted now on ledges of soil on projecting stones, in nooks and corners, and similar places between the informally arranged rocks. Furnish a fair quantity of soil, into which the plants may root easily and quickly, forming good tufts. Among the most desirable and attractive plants to use are *Alyssum*, *Arabis*, *Aubrietia*, *Arenaria*, *Cerastium*, hardy *Cyclamens*, *Dianthus*, *Iberis*, *Saxifragas*, *Sempervivums*, *Ledums*, and *Veronicas*.

HOW TO PRUNE ROSES.—The middle of March is a good time to prune Roses. First of all thin out undesirable growths, removing the weakly and crowded shoots. The rest must then be shortened. In the case of growing blooms for exhibition, close pruning is adopted, not more than six or eight buds being left on even the strongest shoots, while the weaker may be limited to two and four buds, quality of blooms rather than quantity being the object. For decoration, bush Roses may have strong shoots left 18in. and others in proportion. A fair quantity of good flowers will thus be produced. Where shoots are left still longer, as on the pegging-down system, or trained to walls or fences, they will still need some shortening, removing the unripe points. Newly planted Roses cut back to less than half their length in April.

OUTDOOR CHRYSANTHEMUMS.—The hardy border Chrysanthemums spreading into large tufts and becoming overgrown may be lifted, divided, and replanted. Some varieties are very prolific of suckers, which spread out round the original plant. These afford an easy means of increasing the stock, lifting and replanting them to form new clumps, discarding the thickly crowded centres. Rich soil is not necessary, though the ground should be well broken up to a fair depth, and some enriching material added if necessary. Only varieties of proved excellence should be grown, the chief merit of outdoor Chrysanthemums being their earliness in blooming, combined with free flowering, decorative value for cutting, and display throughout the autumn to as late a period as possible.

PHLOXES.—*Phlox decussata*, the hardy perennial Phlox, is represented by many excellent varieties of dwarf and sturdy habit suitable for mixed beds and borders, or even to grow in beds which may be filled with one variety or colour only. In the latter case they are grown to produce a decorative effect, which they will do owing to lasting in bloom for many weeks either in wet or dry weather during August, September, and October. The border plants may be reserved for cutting from. The present month is a suitable time to plant them, breaking up the ground well, previously adding leaf soil and manure. In the case of large clumps, division is necessary every three years. Plant a foot to 15in apart.—E. D. S., Gravesend.

RAINFALL AT BORDEN WOOD, LIPHOOK, HANTS.—February, total for the month, 5.13in, falling on twenty-six days; maximum of 1.11in on the 12th. January, total for the month, 6.97in, falling on twenty-seven days; maximum of 1.51in on the 27th.—E. PLATT.

ONIONS.—The main crop of Onions should now be sown if not already done. The soil should be dry and the drill may be drawn early in the day in order to warm them. Sow more seed than usual to guard against failure, as the soil is exceptionally wet and cold and the seed harvest was an indifferent one.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

REPORT OF MEETINGS (G. G., Ware).—We should be pleased to have the notes you suggest.

CLAIM FOR DAMAGED CHRYSANTHEMUM BLOOMS (G. W. D.).—Mr. Beisant's action against the railway company is reported in our issue of August 1, 1901. He claimed £100, and succeeded in obtaining £60.

HOW TO PICK MUSHROOMS (J. R. E.).—Some care is required (just as in cutting young *Asparagus* growths), in order that the developed Mushroom may be severed or snapped off by a side jerk, while leaving the undeveloped "buttons" firm in the matrix. It is vandalism to tear up whole patches in the way you suggest is being done.

WATERCRESS CULTURE (G. W. S.).—There was no article on Watercress culture in any of our issues of last summer, and indeed, except for occasional short paragraphs and notes in answers to queries, the subject has not been very fully treated since June 30, 1898, where, at page 539, there is a useful article, with an illustration of large Cress beds. This issue, unfortunately, is out of print, but we shall reprint the article next week.

CUTTING DOWN HYPERICUM CALYGINUM (S. P.).—It is usual for this plant to become rather untidy in the spring, as, though nearly, it is not quite evergreen. The flowering is not likely to be affected prejudicially by cutting down the plant to a few inches of the ground, as the severe condition of the foliage can effect but little in the way of evaporation and assimilation of matter, hence the young growths springing from the base of the plant annually would certainly not be materially weakened by the cutting down of the preceding year's growth at this time of year, but it is questionable whether the cut-down appearance would not be quite as objectionable as allowing the old stems and foliage to remain. We have not practised the cutting down process, but have occasionally cut away some of the most sere looking stems with their foliage, and the result has been quite as strong, if not stronger, and freer growth and flowering in the summer. It is not advisable to cut down the plant in autumn, as the old foliage acts as a sort of protection to the crowns during the winter, and also assimilates some matter for storing and favouring the succeeding summer's growth and flowering.

CROSS-FERTILISING NARCISSI (L. B. W.).—1. The flower intended to be fertilised must be deprived of its anthers before the pollen is discharged, to prevent self-fertilisation. It is performed before the flower opens, and therefore before any foreign pollen can have reached the stigma. It usually suffices, in the case of the Narcissus, to cut open the *cup* as soon as the perianth has sufficiently developed, and cut off the stamens near the base with a pair of small and sharp-pointed scissors which cut well at the point. The flower thus emasculated must be tied up securely in a muslin bag or other material that will not allow pollen grain to pass through it. 2. The pistil is ready to receive the pollen as soon as its stigma matures, being fully developed and become viscid, the stigma having a shining and glutinous appearance. The pollen must then be applied carefully and abundantly, covering the whole surface of the stigma. As soon as the pollen is applied to the stigma the flower should be tied up again, and the bag should remain a week, or until the stigma has died and all danger of another pollination is removed. 3. The seed is usually not ripe until July or August, and there should not be any attempt at removing it until the plant has died down, and the capsule is turning yellow; but, of course, always before bursting open and the seeds dispersed. 4. The process of raising plants from seed is a slow one. Seeds should be sown, soon after being collected, in pans of sandy and rather loamy soil, covering them about half an inch deep, and placing in a cold frame, freely ventilating on all favourable occasions, or the seed may be sown outdoors.



Preparation for Mangolds.

The comparative failure last season of such a valuable crop as the Mangold leads us to inquire the reasons of that failure. The chief of these we believe to have been the lack of due preparation of the soil. A large portion of last season's Mangold crop was sown in soil more like broken-up bricks than a reasonable seedbed, and where no immediate rain was forthcoming it was unreasonable to expect germination. This did not take place until heavy rain was forthcoming, and in the meantime the proper season for the Mangold crop was lost.

On heavy soils, most suitable for Mangolds, the season of sowing is mid-April; on peaty soils, which are equally suitable, the sowing period is somewhat later, because on these low-lying, peaty soils spring frosts are much more frequent, and severe frost is fatal to the young Mangold plant. Therefore the farmer of strong soil should endeavour to get his Mangold sown as early in April as possible, whereas the cultivator of peaty land may with profit defer sowing until the middle of May. As regards medium land, we incline to early sowing rather than late, making May 1 the date nearest to an ideal one.

We have an impression that some of the benefit derived from the early sowing of Mangolds comes from the greater certainty of germination. Farmers, as a rule, sow their Mangold seed in the same condition in which they receive it from the seed merchant, viz., a shell somewhat like a rough nut, with one, two, or even three seeds within it, or, in some cases, none at all. And if such a thing is prevalent of course a very poor plant will result. First-rate seedsmen will guarantee that their Mangold seeds, or more correctly speaking husks, will produce a germination of from 150 to 175 per cent., which, of course, would be absurd if no shell contained more than one seed.

Now, hundreds of farmers soak their Mangold seed in water for a day or two before sowing. This is an excellent plan, for it softens the shell and enables the tiny seed enclosed to reach moisture and germinate, but a better way still is to grind, or, rather, gently crush these nuts or shells, leaving the real Mangold seeds free to come into immediate contact with the soil as soon as sown. These Mangold seeds are very much like a Spanish Chestnut on a small scale, containing, as the Spanish Chestnut does, one or more seeds. Few people, we imagine, wishing to grow Spanish Chestnuts would plant them with their rough outer casing. We are quite accustomed to seeing Mangolds come up in very close companionship, the reason being that good Mangold seed contains two or more germinating seeds. If the husks or pods were broken up, and the small contained seeds released, this lumping together of unnecessary plants could hardly occur.

This can be done, and is constantly being done by farmers. A malt mill is very suitable for the work, but any mill which does not grind finely, but simply crushes the outer casing, will do all that is required without injuring the real seeds. We have gone at some length into this question of the Mangold seed because we think it is the centre around which successful Mangold cultivation revolves.

The acreage of Mangold would be largely increased if farmers were more certain than they are of securing a crop at all. The first and most important consideration is successful germination, for without a plant we cannot get a crop, but a young plant, once obtained, it is only a matter of feeding to produce large Mangolds.

You may purchase the best of seed, and either crush or steep it in water, but you must put it into a fairly fine seedbed if you wish it to germinate properly. Last season we saw some seed costing 1s. 6d. per lb. put into a dry, rough seedbed early in May, and the plants did not show above ground until July, after which they had no time to

attain a useful size. The great point about the Mangold seedbed is thorough cleaning by cultivation the previous autumn, but cultivation last autumn was almost impossible.

The preparation, then, this season is somewhat belated, and in many cases consists up to the present time in nothing more than a good ordinary ploughing followed by crossing quite recently. Well, everything depends on the cleanly state of the land, for if it is very foul it is not fit to sow with Mangold, there not being sufficient time now to thoroughly clean foul land before mid-April.

We must, therefore, choose land which is fairly clean, and the next point is the production of a fine mould for the seedbed. Whether the land be strong or medium, we do not believe in undue cultivation at this time of year, for the weather in March is apt to adopt suddenly such a droughty nature that continuous movement of the soil may soon result in a loss of the moisture so necessary for the germination of seed.

If, therefore, the land be fairly clean, has been ploughed down early, and cross cut recently under favourable conditions, we should be inclined to leave it in its cross cut condition, especially if the weather remained of a changeable and uncertain nature. If the weather becomes dry we would ridge the land out the same way as originally ploughed and leave it in this ridged condition until near sowing time, when we would put the spit muck in the furrows and roll the ridges down immediately. All would then be ready for splitting the ridges and drilling at the first favourable opportunity, which would usually mean immediately after a moderate rain.

On some heavy soils Mangolds are drilled on the flat. The land is worked into condition in February, and left to get the surface as mellow as possible through weather influences. Then nothing remains but the drilling. This sounds easy and cheap, and on these difficult soils it is often the only possible way, but there is never the same prospect of a bumper crop as when the land has been ridged and split over an ample dressing of manure.

Work on the Home Farm.

Once again during this dismal season we have to speak of disappointments. A few days ago the land was almost in condition for drilling; since then we have had alternate snow, frost, rain, and thaw, until everything is almost as bad as ever. Meanwhile, the important sowing period is rapidly approaching, and the land is quite unprepared. A neighbouring farm is changing hands, and we notice large quantities of town manure arriving at the local station to the order of the new tenant, who is apparently bent on a large acreage of Potatoes. The carting two miles from the station of several hundreds of tons of manure is no light task, but it is being done now whilst land work is best left alone, so there may be a double benefit. We want more farmers like this one, who do more to keep people on the land than all the legislators we have ever trained.

The waggons which bring the manure are, as soon as emptied, filled with Potatoes to feed the people in the towns which supply the manure. This must be good for both town and country, and certainly for the railway companies. We have several times spoken of the successful lambing season, but we are sorry to have to record an exception. A near neighbour and good farmer is having a sad loss, thirteen ewes having succumbed very rapidly. Expert advice blames the bad weather and heavy lair in the Turnip fold. This may be correct, but if the ewes have suffered from the bad lair they have probably suffered quite as much from a plethora of roots. The old story, overfeeding! You cannot have breeding stock always in show condition and keep it healthy.

Turnips are becoming rather scarce for the time of year, and a good many sheep are being put on the market. So far they have been sent in the wool, but clipping would soon commence if the weather would allow. We may here call attention to the great advantage gained by using a clipping machine. They are rather expensive, but can be made to earn 7s. 6d. per day over and above the wages of the operator. They are easily managed, and if carefully cleaned and put away after the season there is very little wear and tear. As expert clippers are now scarce, we often see sheep sent to market in such a raggy state as to take shillings off their value. A machine will prevent all that.

Agricultural Correspondents.

Following our notes in last week's issue, the Board of Agriculture and Fisheries inform us that agricultural correspondents are now appointed.

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Journal of Horticulture.

THURSDAY, MARCH 17, 1904.

Shrubberies.

BE it in the highways or in the by-ways of picturesque gardening, our subject plays a prominent part; but whether on the larger or the smaller scale, signs of gross neglect or wrong treatment are so frequently seen, as well as the unfortunate results of primary mistakes in the formation and planting of shrubberies, that it is a matter for surprise such should be tolerated, especially in places where other phases of gardening are shown to be carried out and on with such commendable skill. It must be said, however, that this of all others is a branch of gardening in which mistakes are easier realised than anticipated; yet that should be the greater reason for those whose prerogative it is to plan this kind of work, to make it a special study.

In the first place it is necessary to have a clear object in view, for there are shrubberies and shrubberies. For instance, the shrubbery (and walk, of course) may in the one case form the connecting link between the flower garden and the kitchen garden; in another be a feature of, or give character to, certain parts of the pleasure ground; whilst in the immediate vicinity of the residence the massing of shrubs for shelter, ornament, or to screen unpicturesque surroundings, is often a matter of necessity.

We are aware that it is late in the season to talk of planting in connection with this, but all the pros and cons of the question must be roughly outlined in order to introduce other matters for which the present time is opportune; nevertheless, well rooted and frequently transplanted evergreen shrubs and conifers may be safely removed until well into April. Bad design, as well as bad planting in the way of dotting, dribbling, and mixing, are not only

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the sins of former planters for which we have to suffer, but sins which some of to-day seem to have inherited and intend to perpetuate. It is rarely seen what art is able to accomplish in graceful outline and tasteful planting, but frequently in evidence what error is able to achieve in contradistinction to it.

One of the happiest expositions we ever saw was in a comparatively small place, and after an hour's walk under the guidance of an old gardener we could not but express our admiration to him in saying that art had done wonders. "Hart!" he said. "You may well say that, zurr. It's the hartfullest bit o' laying out ever I zeed. Why, you'd think th' place was ten times as big." Without going further, for every situation has its inherent possibilities to be studied, and no two places are alike, we trust the above is an apt illustration of what can be done in one direction.

As an object lesson we again hark back to the long ago, and select a broad shrubbery, some half-mile long, with a good depth of background on either side, in which timber trees were the pièce de résistance, the filling in being done with the usual complement of coniferæ, evergreen and flowering shrubs planted well up to the verge.

This shrubbery, which was the chief approach to the gardens from the mansion, we will, for our purpose, strip to the bone, and reclothe the skeleton in rational dress. With the general outline there was but little fault to find, as bold and graceful curves relieved any monotony or stiffness which might otherwise have obtained. The first consideration is that planters never seem to look far enough into the future, forgetting that "mighty Oaks from little acorns spring."

In this case fine coniferæ had in various places been planted so close to the verge as to annually encroach on the walk, and the question of further mutilation with the lopping shears, or entire removal, was the question of the hour. We would like to see these beautiful trees not only planted to avoid such contingencies, but grouped instead of indiscriminately dotted over the whole area, and in grouping each variety kept to itself. For instance, *Picea nobilis* to itself, in groups of three or six, according to space; and so on with *P. Nordmanniana*, *P. grandis*, the various *Abies* and *Cupressus*, and others of that ilk; this, of course, on the larger scale.

Insistence should be placed on the planter making provision for eventual thinning, which, if not required for many years, is a possible contingency not to be lost sight of. If a group, say, of six, is planted to form a triangle, three in the background, then two, and one tree at the apex, it will be readily seen how easily the three inner trees can be removed when necessity arises, and three left permanent—the three which form the points of the triangle. We do not lay down this or any rule empirically, merely wishing the planter to mend his ways, that future prospects should not be sacrificed to present effect.

We are aware that all this requires a keen eye for the prospective, a clear head to plan, and an able hand to execute it; but the subject is wholly worthy of it, and that few will deny. As with the trees, so with the shrubs, and more also, for with the former the sin of dotting may not be so much in evidence, and to some extent disappear with time and growth. Not so with the shrubs; the eternal dotting and mixing is a perennial disgrace we would fain wipe off our landscapes.

In grouping, say evergreens, let a dozen *Aucubas*, twenty *Laurels*, half a dozen scarlet *Rhododendrons*, half a dozen white ones, the same of golden *Hollies*, or silver *Hollies*, or a score of sulphur coloured *Azalea mollis*, and so on down the whole gamut of flowering shrubs, foliaged shrubs, or what not, occupy each its own position; and we beseech you to only approach the verge in places; let deep, open bays be left, of which more anon.

The above forms the groundwork of our ideal, an ideal so high, perhaps, as to be not wholly attainable; but we must have one, and all designers and planters should have one too, never to be lost sight of, and those who aim highest will nearest reach their goal. We have now, as delineated in this sketch, an undulating front line formed by the groups of shrubs, care being taken that none of these groups, seen longitudinally as we travel the walk; obstruct the view.

To this end the bulk of the groups, but not necessarily all, should consist of things sufficiently low habited to prevent that, for clipping and trimming is an abomination

not to be tolerated. To more clearly explain what is meant by the undulating margin, its formation should leave open bays of from 10ft, 20ft, or even 30ft in depth, as the case may be, with the object still before us. That object is the introduction of bulbs in masses, or other hardy plants suitable for the purpose. But still no mixing, we pray you. The one bay may be planted with *Narcissus Barri conspicuus*, another with *N. incomparabilis* Sir Watkin, *N. princeps*, and so on; whilst *Crocuses*, *Bluebells*, *Snowdrops*, *Winter Aconites*, *May-flowering Tulips*, and similar things commend themselves for consideration.

One thing above all others is delightful for the shrubbery when grown en masse, that is, *Solomon's Seal*; and *Lily of the Valley* under the shade of trees will not be forgotten. *Hypericums*, *Megaseas*, *Veronicas*, and *Tritomas* are merely suggestive of plants to be used; but we have here, in this phase of the question, the desirability of studying each position and the suitability of plants to it. Our ideal shrubbery affords ample variety in that respect. In damp, shady spots *Osmunda regalis* or *Struthiopteris germanica* will be quite at home, whilst drier situations, still shady, may suit the *Lady Fern* or the *Male Fern*.

In sunny spots with a wet bottom (this might be excavated for the purpose) *Iris Kämpferi* will be happy, and its cousin german, *I. germanica*, will thoroughly enjoy a sun-baked, arid situation. Farther in the background space might possibly be found for the *Giant Knotweeds* (*Polygonum*) or *Bamboos*, all of which we again dare venture to caution planters against mixing, even with *Iris*; confine the one variety to the one place. Can our readers now imagine what our ideal shrubbery is like, although so imperfectly sketched? If so, they will scarcely assert that imagination is a vain thing.

Unfortunately it is more often a question of what one has than what they would have, although "where there's a will there's a way" is as applicable here as anywhere else. We grant you that those who pay the piper should call the tune, but there are a dozen ways in this direction in which "the piper" can introduce grace notes sufficiently strong, if only in a minor key, to bring things somewhat nearer concert pitch. In old shrubberies where bare-legged *Laurels* and similar evergreens can be drastically dealt with, this is the time to do it. We advise the bare-legged ones to be cut to the ground instead of headed off breast high, in which operation there is no satisfaction, and twelve months will prove it.

To avoid wholesale bareness half the plants might be cut down at once, the remainder deferred till next season, the best plan of doing this being to cut down bold patches and leave intervening groups. "Poverty sharpens the scythe of Time," and poverty and neglect are nowhere more frequently seen than in the shrubbery. Even a common *Laurel*, common as it is, can be starved to death, so we advise the cut down portion to receive a good top-dressing of decayed manure and rough leaf-mould, if obtainable, without delay.

The claims of space are ever at war with inclination, and regretfully we conclude while there is much to say. It was the intention to dissert on all sorts and conditions of shrubberies, and treat of various positions; but that must be shelved in saying that the principle laid down applies to all if seasoned with common sense, for the subject, like most garden subjects, is an elastic one, and in closing may we repeat a very important one?—K., Dublin.

The Physiology of Yeast.

Yeast, as everybody with a knowledge of elementary botany understands, is a microscopic unicellular plant which increases with great rapidity by a process of budding when introduced to a fluid containing saccharine and other food materials. Prof. S. H. Vines, president of the Linnæan Society, at the meeting of that body recently, delivered an address on "Researches in the Physiology of Yeast," in the course of which he sought to show that the Yeast cells may have a number of enzymes or ferments that have not hitherto been noted, and whose purpose is to act definitely within certain limits in the process of food elaboration. Thus one enzyme converted albuminoids to proteids; another broke down the proteids to different sugar forms, each enzyme doing only a limited share, in the same manner as the various stages of digestion are carried on in the animal body. The tests he had made seemed to confirm his theory.

Some Early Caterpillars.

About this time of the year a gardener is likely to renew his acquaintance with caterpillars, while he is engaged in turning over the soil, or cutting off branches and twigs. Some caterpillar appears which has been feeding upon the roots and crowns of plants, or there is one burrowing along the pith. This meeting is seldom agreeable to either party. It reminds the gardener of insects which have given him far too much annoyance in the past, and the caterpillar's career is probably cut short.

The subterranean caterpillars, living from autumn to spring or summer, doubtless vary in habit, but most of them eat sparingly during the winter. Those living through that season in the wood of trees, whether it be branch or solid tree trunk, seem inclined to be torpid, feeling the influence of the lower temperature. Some, indeed, contrive a winter nest, the too common caterpillar of the goat moth does so, which is lined for warmth. Frequently, I have split open Currant twigs, where the Currant clearwing caterpillar makes its burrows. Though the insect is small, it takes two years to complete its history, and this fact renders it highly probable it does not eat during the colder months.

Just now, however, we are not going to refer any more to the hidden caterpillars of winter, in wood or earth, that are becoming more active on the approach of spring, but notice a few of the hibernating species which have braved the cold months exposed to the air, or with only slight shelter. These are more sizeable than other early caterpillars which are beginning to appear upon twigs and leaves, which have only recently emerged from the egg.

To these the rough winds and sharp frosts which March often brings are far from favourable. Eggs may be retarded in hatching, but neither cold nor moisture acts upon them injuriously. Cold does not hurt the bulk of hibernating caterpillars, some will even get so congealed that they will chink in a box, if shaken, like little stones, yet revive afterwards. Much moisture, on the other hand, is against them, causing disease that is fatal.

Therefore, it is evident the heavy rains of the past autumn and winter must have had the effect of thinning their numbers notably. Those particularly reposing on or near the ground must have often been drowned by the downpour, others may have fared better that are sheltered in a cocoon, or rest upon the under side of a branch. Yet a strong cocoon may fail to resist damp. The social winter nest of the brown-tail moth is formed of tough material, but the broods sometimes perish during the winter, and it has been scarce of late, much to the benefit of our fruit trees.

Its common relative, the gold tail, lives solitary, the caterpillar spinning a double cocoon on Hawthorn, occasionally on other shrubs, and comes forth in April to feed up. One of our friends, who is somewhat interested in caterpillar life, has asked whether, on the whole, those furnished with a coating of hair are better able to resist the weather than their naked brethren. Probably the hairs afford protection from the cold. This is certain, that the tiger moths have caterpillars densely clothed, which live through the winter at least. So do the rather hairy footman caterpillars, but not the also hairy ermines. As to rain, one doubts whether the hairs are a benefit; the moisture may come through to the skin, and a caterpillar cannot shake itself dry.

During the first mild days of spring, the caterpillar of the great tiger (*Arctiacaia*) occurs upon various low plants in gardens, rolling into a ball if alarmed; later, it is now and then seen upon shrubs, yet is partial to the Hollyhock. By rolling suddenly into a hairy ball it eludes some enemies. It is notable that this hairy covering is changed by the caterpillar eight or nine times during its life. The moth is stated to lay a large number of eggs, about 600. This suggests that many caterpillars die immature, or the moth would be more abundant.

Not in gardens with well-trimmed lawns, but where the grass grows freely along lanes and by-paths, the drinker caterpillar comes from his winter sleep to feed on the new blades. He has his name from his partiality for sipping now and then a drop of morning dew. We call him handsome, for he is garbed in blue-grey, orange, black, and white; when adult, he spins a shuttle-shaped cocoon of leathery texture, fixed to a stem, and flies forth a week or two after midsummer.

Better known, and of less size, yet able to be mischievous, is the Gooseberry caterpillar, or magpie (*Abraxa grossularia*) now seeking out the buds of that shrub, also visiting the Black Currant, and occasionally the red variety. You may go into a cottage garden and find some in winter reposing on the branches, perhaps slightly protected by a leaf. Caterpillars, like most creatures, know where they are well treated. There are places where they have to look out for their lives, and hide during the cold season amongst stones, in cracks of walls, or in Box edging and other low plants. Even then they may have a poor chance of escaping in spring, for skilled gardeners spray the shrubs diligently, just about the time the caterpillars are making themselves visible. One important way of keeping the species down is to remove during the summer any of the conspicuous black and yellow pupæ that can be found.

We have examples of hardy caterpillars amongst those producing the thorn moths. Some of these rest exposed, either flat or half bent, upon twigs all through the winter. Some feed on Birch, Ash, Lilac, or occasionally on the Rose early in the spring. Being about half-grown then, brown, or greyish, and humped, they may easily be mistaken for portions of twig. Familiar to us in March or April is the caterpillar of the angleshades moth (*Phlogophora meticulosa*) which has nibbled Chickweed or Groundsel through the winter, and is now seeking leaves of the Primrose, Chrysanthemum, and other garden plants. It is velvety, greenish, or light brown, always sprinkled with white.

Another caterpillar that is active early in the season of growth is the gothic (*Nænia typica*), a dull brown caterpillar striped, having a small, glossy head; it feeds ravenously on herbaceous plants, but never ascends trees.

When the trees and shrubs are bare of leaves, the egg patches of the vapourer moth (*Orgyia antiqua*) are plainly visible, being laid by the parent outside her cocoon of hair and silk. I do not know that there is anything venerable about this insect, to explain the Latin name, but the undulating flight of the moth accounts for the English one. The caterpillars have tufts of yellow and black hairs, two of them pointing over the head. Part of the brood come out at the opening of the buds, others emerge in succession, some not hatching till new moths.

Early moths sometimes, though not always, produce early caterpillars. It is so in this genus *Hybernia*, which contains several species of great abundance. One of these has a handsome caterpillar. This is the mottled umber, very aptly called *H. defoliaria*. They grow slowly at first, but soon get large enough to make a display in copses and shrubberies, where they are not disturbed. It is funny to see them dangling by hundreds in the spring breeze, the threads, possibly, 2ft long, but they do not drop, being able, as a rule, to wind themselves up again.

Where the winter moth (*Cheimatobia brumata*) has escaped the perils of its mature life, it lays patches of eggs towards the end of the year in crevices of the bark; these are green, but turn brown. Not without risk the tiny, newly-hatched caterpillars travel to the nearest buds towards the end of March, and within them, till expanding, they lie hidden. Afterwards they feed exposed, drawing the leaves together in the well-known style. Early in April the stumpy, reddish caterpillar of the green pug (*Eupithecia togata*) is attacking the flowers of Apple and Pear, joining with the abundant Apple weevil in distorting the bloom, and causing it to drop. Yet we slaughter the little birds which destroy these pests.—ENTOMOLOGIST.

Novelties and Rarities.

Impatiens Oliveri (Kirk, 1903, British Central Africa) may now be seen in flower at one end of the central stage of the Begonia house, Kew. The species, new to cultivation, bears the Balsam character (the latter belonging to the same genus), with succulent, upright stems, lanceolate leaves, with minutely serrated edges, borne in whorls of about seven. The serrations form tiny glands that give off a viscid fluid. The rounded corollas of the flowers are 1½ in wide and coloured deep Apple-blossom pink—very beautiful. Only a few flowers are open at one time, but they are very attractive. One of the sepals forms a long spur.

PORPHYROCOMA LANCEOLATA.

This acanthaceous intermediate-house plant is one of the most distinctive now flowering in the T-range at Kew. Picture a *Justicia* 1ft high in a 5in pot, with dull reddish bracts and two-lipped, tubular, purple flowers (almost identically like those of *Peristrophe speciosa*), protruding out from the spike. The erect red bracts and purple flowers form a novel but beautiful contrast.

CLERODENDRON MYRMECOPHILUM.

A good popular description of this showy species, which is now flowering in the stove at Kew, would be to liken the inflorescence to that of *C. fallax* with bronzy-yellow instead of crimson flowers. In the bud state the flowers are coloured reddish-orange. The foliage is oval-elliptic, smooth, and metallic-grey.

PHILODENDRON SCANDENS.

This plant seems to have unlimited growth, for shoots may be measured in the Aroid house at Kew, quite 40ft in length. Possibly it may depend on its freely produced aerial roots, which are emitted in bunches from each node (the nodes are generally only 4in apart), and the stem may have died away from the parent rootstock in the soil. Some of the *Philodendrons* do this. The genus is one of the most varied of the *Araceæ* (Aroids), and great variety of form is noticeable in the habit of the plants and their leaves. *P. scandens* is suitable for training to pillars, and the growths may be continued along the horizontal supports of large heated conservatories or winter gardens, and be allowed to hang from them. With shining heart-shaped foliage of a size 6in long by 4½ in broad, on alternate sides of the polished, round green stems, they furnish a pleasing and ornamental feature of a large plant house. The culture is of the simplest, heat and moisture being the chief essentials.

British Birds.

(Continued from page 204.)

THE CUCKOO (*Cuculus canorus*) arrives in April and departs soon after midsummer, leaving the young to follow when reared by foster-mother, usually hedge sparrow, sometimes tree and meadow pipit, and sufficiently strong on the wing. Only one egg, remarkably small, is laid in the nest of the foster-mother, and the young cuckoo casts the rightful occupants forth in order to be well fed itself. The cuckoo is particularly valuable for feeding on the hairy caterpillars often infesting gardens, and freeing Gorseberry bushes of caterpillars. It, however, feeds largely upon other insects, and is extremely useful. The idea that the cuckoo eats birds' eggs rests upon no better foundation than that of its being followed in anger by other smaller birds, possibly from the somewhat close resemblance to a hawk.

THE NIGHTJAR OR GNAT SUCKER (*Caprimulgus europæus*) is tolerably common in England during the summer months, is nocturnal in habits, chasing their insect prey at dusk or by night, when chafers and moths are on the wing. It arrives in May and leaves in December. During its stay countless insects are taken in their airy flights, and foresters, farmers, and gardeners thrive proportionately in their crops.

THE RED-BACKED SHRIKE (*Lanius collurio* or *collaris*) may be seen in and about hedges in the spring, and though it may occasionally feed on small birds, its food mainly consists of beetles, grasshoppers, dragon flies, cockchafers, and other insects, with mice, frogs, and lizards thrown in at times.

THE SWIFT (*Cypselus apus*) seems to spend the whole day on the wing, and the number of insects taken on wing is almost incredible, for the quantity taken out of a kind of pouch under the tongue can hardly be pressed into a teaspoon, these being intended for the young, and the supply is often renewed. It is very partial to church towers or steeples.

THE CHIMNEY MARTIN OR SWALLOW (*Hirundo rustica*) is the commonest of its family, and is fond of skimming over ponds or rivers, and captures no end of insects that infest the air. It breeds twice a year, nesting against a wall or other convenient situation.

THE COMMON MARTIN OR WINDOW SWALLOW (*Chelidon urbica*) arrives shortly after the swallow, and departs towards the end of September or early in October. It builds its nest under the eaves of buildings, or on beams in outbuildings, and is wholly insectivorous.

THE SAND MARTIN (*Cotite riparia*) arrives before any of its brethren, and builds chiefly in cliffs of sandstone or in sandpits, making holes three or more feet in depth. Eggs five, pinkish white with a faint dotting of red. Sand martins are rather fond of mobbing the sparrow hawk, and when one falls a victim are as abject in cries of fear as before of triumphant jeers. It is much the same with cultivators of crops jeering at birds' influence before disaster falls, and when crops are ravaged by insect pests lamenting their destruction.

Resident.

Omnivorous, or partly helpful and partly injurious.

THE BLACKBIRD (*Turdus merula*).—This delightful songster, always the male, charms the garden, field, and woodland, indeed, is common everywhere, though not nearly so much so as formerly, for fruit growers decimate fruit-eating birds in a very wanton manner, so eager are they for all profit and no loss. It devours ground insects and their larvæ, snails and slugs, especially the eggs, worms, unearthing grubs, and doing immense useful work for greater part of the year. Its appetite is keen as regards fruits, wild or cultivated, and the only effective protection is wire or tanned netting.

THE SONG THRUSH, THROSTLE, OR MAVIS (*Turdus musicus*) pours forth its song at times during the winter months, and in springtide makes much melody in the garden, field, and woodland. Its merits extend to a double claim for protection, as it feeds mainly on ground insects, worms, and snails, clearing the shells from these by beating them against a stone. Against its usefulness must be placed a keen appetite for cultivated outdoor fruits, especially the soft, but is not nearly so severe in its ravages as the blackbird on orchard fruit. Netting is the only sure protection for Strawberries and bush fruits against this bird.

THE MISSEL THRUSH (*Turdus viscivorus*) charms, as the blackbird and throstle, the groves with melody during the winter months, but is not nearly as common, hence is not of so much concern to fruit growers, indeed, it has rather a deterring influence on the blackbird and throstle, driving them away from its haunts, and seldom devours garden fruits, though fond of Cherries and Raspberries. It chiefly feeds upon ground insects, worms, &c., and on wild fruits, such as Holly, Hawthorn, Mountain Ash, Yew, and Mistletoe. During the breeding season it is very pugnacious, driving away not only small birds, but the crow, magpie, and even the prowling cat.—GEO. ABBEY.

(To be continued.)



Arachnanthe Cathcarti.

This plant was recently staged in the Drill Hall, Buckingham Gate, S.W., by Mr. Jeremiah Colman (W. P. Bound, gardener), and from a flower there our sketch was made. It is a very interesting species, with the labellum "on a swivel," as someone has said. The sepals and petals are fleshy. The following notes are from "Orchids: Their Culture and Management," new edition:—

"A. CATHCARTI (Benth.).—'No more remarkable orchid has been found in Northern India.' So wrote Dr. Lindley at the time of its introduction in 1864. Subsequent knowledge compels us to somewhat modify this verdict, but A. Cathcarti still remains one of the most striking of orchids. The tall stems are terete, and bear two opposite rows of pale green, narrowly-oblong leaves, about 6in long, and unevenly lobed at the end. The flowers are 3in to 4in in diameter, and are produced, four or five together, on stout racemes. The sepals and petals are broad-oblong, overlapping each other; the ground colour is pale yellow, but it is almost covered with transverse bands of reddish-brown. The lip is three-lobed, white, tinged with red on the side lobes, the margin of the middle lobe being yellow and curiously incurved. Sir Joseph Hooker, who discovered this orchid, says that it inhabits hot valleys in the Eastern Himalayas, and is usually found in the neighbourhood of waterfalls. Syns. Vanda Cathcarti, Esmeralda Cathcarti. (Fig. 18; B.M., t. 5845.)

"The four or five cultivated species have, from time to time, been removed from one genera to another in a mysterious manner. They have appeared under Epidendrum, Renanthera, Esmeralda, and Vanda. Under the last name some are still retained in gardens. The species require similar treatment to that advised for Aërides and allied genera. A. Cathcarti grows best in an exposed position at the warm, moist end of the Cattleya or intermediate house. During the active season of growth the plant should have frequent sprayings. If placed against a wall the roots get hold, and this considerably assists them. The roots being principally aerial, little potting is required."

Cultural Notes: Potting Operations.

Although cultivators having a few seasons' experience will probably need little advice as to the manner of potting orchids and the materials used, it is evident that there are many growers who understand little about it, this being shown by the nature of the queries that come to hand respecting it, and the appearance of plants in small collections. No matter how good the plants may be, they are utterly spoilt by faulty or slovenly potting, while, on the other hand, even a poor specimen looks much nicer when neatly potted.

The usual compost for the majority of pseudo-bulbous orchids is bog moss or sphagnum, peat fibre rid of all earthy particles and sand, with something of a hard nature, like crocks or charcoal, to ensure aëration of the whole and prevent closeness. The peat fibre and moss should be kept in one heap on the potting bench, the crocks and charcoal (broken in various sizes) in others, to be added as necessary while the work of potting proceeds. It is usual to pick the moss over carefully, selecting the rougher, lower parts for covering the drainage, reserving the green, growing points for surfacing, the remainder being used for mixing with the peat. In many collections leaf soil is much used, and with excellent results, for potting the pseudo-bulbous section of orchids generally, but this is a phase of their culture that must be treated on a future occasion.

As a rule the drainage crocks should fill two-thirds of the depth of the pot, even more being needed by weakly and fine-rooted species, less by those that have stronger, more vigorous and persistent roots. In the same manner, those plants having roots of the latter character need a rougher, more open compost, with larger lumps of charcoal and crocks than the former. When the specimens are well rooted the trouble of fixing the plants is not great. The usual method is to take the plant in the left hand, wrap a little of the peat and moss about the roots, and hold it in its correct position—i.e., with the base of its pseudo-bulbs a little higher than the rim of the pot—and fill in with crocks and compost alternately.

A blunt dibber is used to firm the compost as the work proceeds, finishing it neatly in the form of a cone. Then a few of the growing points of sphagnum should be dibbled in around the edge, and the whole neatly trimmed off with a pair of shears or strong scissors. Species having a tufted habit, such as *Odontoglossum crispum*, are much easier to fix than looser habited plants, like *Cœlogyne cristata*. A few pegs may be necessary in the latter case, while plants with an erect habit, like *Dendrobium*

Bensoniæ, will require a few stakes and ties. It is of the utmost importance that all plants are very firmly fixed in position.—H. R. R.

At Woodhatch Lodge, Reigate.

Reigate is a quiet little township lying on the slopes of chalk hills in Surrey, some twenty-four miles from London. The estate of Woodhatch Lodge extends to 117 acres, and is owned by Mrs. Haywood, widow of the late T. B. Haywood, Esq., who took an active interest in horticultural progress, and Mr. Charles Haywood, the son and heir, succeeded his father as treasurer to the National Rose Society. Woodhatch Lodge has a special reputation for Roses, Chrysanthemums, Orchids, and hardy fruits from the efforts made by the head gardener, Mr. C. J. Salter, whose name must be familiar to all our readers.

In the very short space at disposal on this occasion, one must confine attention simply to the orchids, and the Dendrobiums particularly. Dozens of visitors have been viewing the collection during the past fortnight, for the plants are arranged to present a long vista of rich and beautiful flowers banked up on both sides of three span-roofed houses all in line.

A rough estimate would place the total number of blooms at about 25,000. Many of the plants with four, five, and six pseudo-bulbs are carrying from fifty to sixty flowers; while an unnamed hybrid (*D. Wardianum* x *D. Hildebrandti*) has seventy-seven flowers on one arching bulb, which is 5ft long. Mr. Salter has for years interested himself in hybridising Dendrobiums, and has used three species principally—*Ainsworthi*, *Findleyanum*, and *splendidissimum*. *D. Salteri* (*D. splendidissimum* x *D. Findleyanum*) received an award of merit last year; *D. rubens purpurascens* (*D. nobile* x *D. splendidissimum*) is another handsome variety, with very large and dark rich flowers; *D. splendidissimum delicatum* may also be given "three crosses" for merit. *D. Ballianum*, with its pale, lilac-coloured lip and ivory segments, is chaste; while *D. nobile nobilius* is well represented (handsome purple flowers), and *D. Rolfei* comes intermediate between *D. Pierardi* x *nobile*. *D. splendidissimum* type with fifty-six flowers made a display worthy itself of a visit. *D. Ainsworthi* Woodhatch variety is one of the best; and *D. x Virgil* (*D. nobile roseum* x *Ainsworthi*), with its white segments and ivory lip with purple blotch is both vigorous and beautiful. The pseudo-bulbs of this particular hybrid measured 4ft in length, but the character of health and robustness marked the whole collection.

Briefly one must name *D. splendidissimum* var. *Mrs. Haywood*, whose sepals and petals curve forward, and whose labellum is finely rounded. The latter has a rich dark blotch, and the segments are rose-purple. One notices the additional richness given to the *splendidissimum* type when there is a zone of yellow in the throat. This is noticeable in Mr. Salter's most recently certificated variety, a very handsome hybrid.

How to Raise New Daffodils.

A paper read in Cape Colony by Mr. Peter Barr, V.M.H.

(Concluded from page 198.)

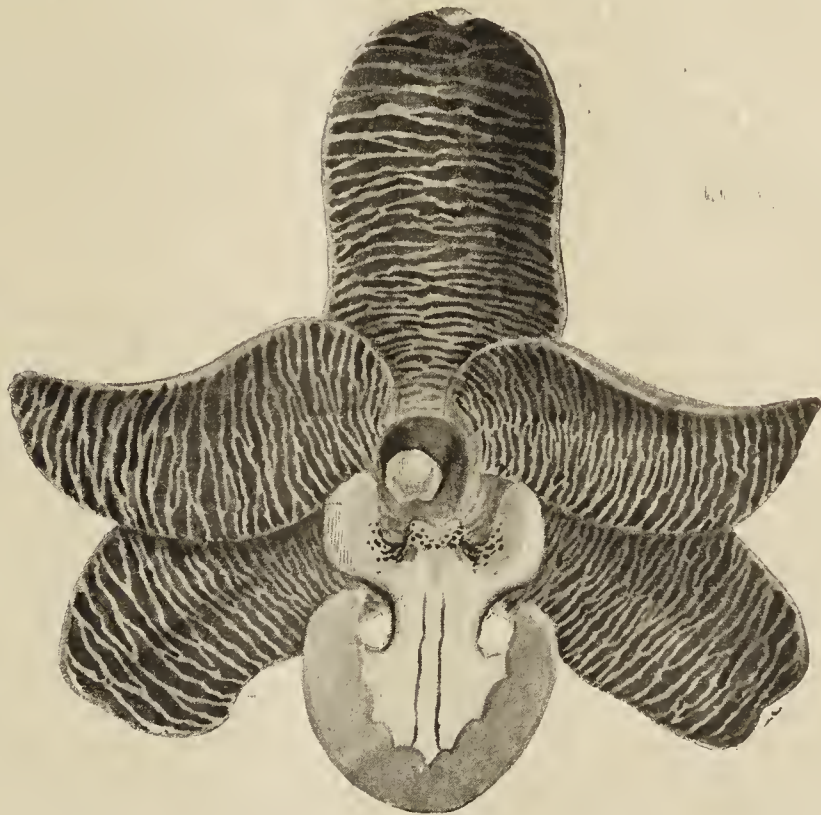
Having attended to the above, on the Daffodils going to rest: As soon as your Daffodils go to rest, lift them, and pot-up in a good loamy soil, one to three, in a suitable sized pot. Make the soil as firm as possible round the bulbs and round the edge of the pot. Stand the pots on a bed of ashes, and cover over to the depth of six inches with ashes in a shady place, to remain till the plants spear through the ashes, then remove to your lath or bush house, and if you want to work late flowering or early-flowering varieties, put the latter in the coolest part of the house, and the former in the warmest part. Always cross both ways, that is, make the one the mother and the other the father, then reverse by making the father the mother, and so forth.

A careful watch has to be kept to see when the flower is ready to take pollen, a glass will help you to do this. When the little knob at the end of the pistil exudes a glutinous substance, then the plant is receptive. The pollen grains, when ripe, will be seen as loose, round balls on the anthers, carry the pollen from the one to the other with a brush of a piece of ivory; make a daily examination, once or twice a day if your time permits, and repeat the process of carrying the pollen from one to the other two or even three times as a precaution. Darwin was of opinion that pollen from a distance was better than pollen from one's own garden. Mr. Blackhouse had no chance of using any pollen except from his own plants, but in naming this, some one of a searching turn of mind might experiment, and so add to the pleasure of the work. If the aim is to improve the trumpet section of Daffodil, use only the pollen from trumpet flowers. Thus, if big, yellow flowers are wanted, aim at surpassing in size, *Emperor*, *M. J. Berkeley*, and *maximus*. If it be Bicolors, try and excel *Empress*, *J. B. M. Camm*, and *Weardale Perfection*. If it be white trumpets, surpass, if you can, *Cernuus pulcher*, *Madame de Graaff*, *Mrs. Camm*,

and *Tortosus*. If you wish to improve the varieties of the Poet's Daffodils, beat, if you can, *grandiflorus* and *poetarum*, and endeavour to increase the size of *ornatus*.

To Get Hybrids.

If your aim is to get hybrids, then use trumpets on the Poet's Daffodil, and the Poet's Daffodil on trumpets. By fertilising both ways you get a large range of sizes. The trumpets will give larger flowers and longer cups. The Poet's Daffodil will give shorter cups and larger or smaller flowers, according to the mother you use. I could give you many interesting examples, but I have more than doubled the length of the paper I had intended writing. I am, however, always at the service of anyone desiring further information on these subjects. Immediately the seed is harvested,



Arachnanthe Cathcarti.

sow in a wooden box, with plenty of holes in the bottom for drainage. Over each hole place a hollow crock, and fill up with rubble to one inch, over this, rough pieces from a loamy pasture, and over this, with two inches of good loam, with enough rough sand to keep the loam from binding and cracking. Cover the seed half an inch, place the box on a layer of ashes to keep out ground insects. The young seedling may appear within a month or two, or not till the following spring, depending on situation and state of soil and atmosphere.

When the seedlings are up, guard against snails and slugs. Once they touch the young plant death follows. In this box the seedlings should remain two or three years till the bulbs are at least the size of large peas, then they should be planted out in a bed well prepared with good loam, and as cool a place as can be found in the garden. In five years some will flower, but till the same bulb has flowered three times you cannot judge the value of the flower, as flowering begins before the bulb has reached its full size.

It may appear a long time to wait, but if you fertilise flowers annually and sow annually, the time will soon slip away, and the amateur who has something to look forward to in the future will live longer than the one who has no future. It is well known that pensioners are long livers, and high clerical dignitaries live longer than ordinary clergy. The smaller Daffodils, as *Angel's Tears*, *Hoop Petticoats*, &c., flower in about three years.

Paintings of any new Daffodils sent home to my sons, they will inform the sender what progress he or she has made; I cannot, at my age, expect to last a great many more years. Mr. Bradley, of Sydney, however, expects that in ten years his sons will be able to look after his clients, and has challenged me to go with him to collect South American bulbs.

GARDENING FOR WORKHOUSE BOYS.—The Swindon Board of Guardians have decided to induce boys in the workhouse to take an interest in gardening, and to some extent to make provision for their future lives by giving them plots of land on which they may work.

PLANT-GROWING BY CHILDREN.—At a meeting of the Accrington Town Council, Mr. Pickup called attention to a proposed plant-growing competition which the Parks Committee were promoting among the school children of the town. He hoped parents, school teachers, and the Education Committee would enter into the project heartily.

Insecticides.

(Continued from page 215.)

BISULPHIDE OF CARBON.—A thin liquid, volatilises at a low temperature, the vapour being very destructive to animal life. It is exceedingly inflammable, and in using it great care must be taken that no fire comes near it. On exposure to the air the liquid evaporates, and as the vapour is heavier than air it settles rather than rises. It also has a disagreeable odour, which soon completely disappears. It is used for many root insects, such as ants, grape phylloxera, and other pests that may be reached by a vapour. It is poured into a hole, or holes†, which is immediately closed up, causing the fumes to permeate the soil in all directions, and in loose soils is very destructive to insects. It is also used for destroying grain insects, such as grain weevils and pea weevil, the grain being placed in air-tight receptacles, and the charge (1oz bisulphide to 100lbs of grain) made, closing securely. The vapour descends between the grain and destroys all the weevils it reaches. The bisulphide does no harm to the grain, as regards its colour, smell, or cooking properties, but it is liable to injure seed-grain, too much being used and its action continued too long.

Gas Liquor.

This is an impure solution of the sulphides of ammonium obtained as a bye-product in the manufacture of gas, and is valuable as a manure as well as an insecticide. It varies considerably in strength, and on that account less used than formerly. It has been used successfully for destroying American blight on Apple trees diluted with two parts water, applied by means of a brush as soon as the leaves had fallen in the autumn, reaching well into the "nests" of the woolly aphis. The liquid should also be applied to the soil so as to destroy the pests on the roots.

For applying to grass land or lawns for the destruction of cockchafer and other grubs, the ammoniacal gas liquor should be diluted with at least two parts water. At that strength it will probably brown the grass, but this will soon recover and become thick and deep green. If applied during the growing season the gas liquor should be diluted with five times its bulk of water, applying as much of the diluted liquor as in an ordinary watering. For use over foliage it must be diluted with twelve times its volume of water. It, however, is hardly safe to use on foliage, or at least not until ascertaining a safe strength.

Gas Lime.

In the manufacture of gas quicklime is used to remove impurities, and the gas lime thus produced is a mixture of lime carbonate and hydrate, with sulphite and sulphide of calcium, the last two compounds injurious to vegetation and also poisonous to pests, such as Mollusca (slugs), Myriapoda (millipedes), Crustacea (woodlice), Insecta (insects, their larvæ and pupæ), Arachnida (mites), and Termes (worms, including eelworms), Myxomycetes (slime fungi), and Fungi (vegetable parasites in mycelial, spore, or resting spore stage).

When land becomes foul with any of the pests named, nothing is so drastic and effective as a dressing of gas lime as fresh as possible from the gas purifiers, and the best time to apply it is in the autumn, always when the ground is cleared of crops, and never over the roots of fruit or other trees. From 3 to 5 tons per acre, 1½qr or 42lb, to 2½qr or 70lb per rod. It should be spread evenly on the surface, and left there for a month or six weeks before being dug or ploughed in.

Carbolic Acid.

This article is a well-known corrosive poison, prepared from coal-tar, and very injurious to plant life, hence used for destroying weeds, but it has been found valuable for various insecticidal purposes, especially as a wash for preventing the attacks of tree-borers. The wash, called carbolic acid and soap mixture, is made by mixing one quart of softsoap, or 1lb of hard soap, with two gallons of water, and dissolving by boiling, then adding a pint of crude carbolic acid, and mixing thoroughly so as to form an emulsion. This is applied to the stems and branches of trees by means of a brush, diluting with hot water if necessary. As a wash dilute to 25 gallons with hot water. Carbolic acid soaps are not only valuable for scrubbing floors to kill flea larvæ, and as general household disinfectants, also for destroying vermin on domestic animals, but for freeing plants from aphides and other "sucking" insects. A solution of carbolic soap, 1oz to 2oz, to a gallon of water is very effective when sprayed on bushes or trees, so as to reach the pests on the under side of infested leaves, this being a very important matter in the case of Currant and other bushes or trees infested with aphides.—EXPERIENCE.

(To be continued.)

NOTES



Royal Botanic Society's Arrangements.

The preliminary arrangements for the coming summer and autumn are now announced, and particulars are obtainable on application to the Secretary, Royal Botanic Gardens, Regent's Park, London. The spring exhibition was held yesterday.

Our Spring Number.

We trust that the following note from Dublin voices the opinion of all our readers; and we have had no complaints!—"Much interested in your 'Spring Number.' Eh, mon, but tak' it a' round it's fine. . . . Thine, with compliments on its general excellence.—K."

Obituary: Mr. David Drummond.

Mr. David Drummond, J.P., head of the well-known firm of Drummond and Co., nurserymen, died at Dublin on Tuesday last, aged 91. Mr. Drummond founded his firm sixty years ago. He was honoured and respected for his high commercial integrity, and took a keen interest in philanthropic movements, with a number of which he was prominently associated.

Royal Horticultural Society.

The next fruit and flower show of the Royal Horticultural Society will be held on Tuesday, March 22, in the Drill Hall, Buckingham Gate, Westminster, at 1.5 p.m. A lecture on "Heredity of Acquired Characters" will be given by the Rev. Professor G. Henslow, V.M.H. At a general meeting of the society held on Tuesday, March 8, fifty new Fellows were elected, amongst them being Sir Henry Pottinger, Bart., Lady Lyall, and Lady Slacke, making a total of 351 elected since the beginning of the present year.

Birmingham Gardeners' Association.

At the last fortnightly meeting Dr. A. H. Reginald Buller, The University, Birmingham, was responsible for an able and interesting essay on "Parasitic Flowering Plants," illustrated by lantern slides. The chairman (Mr. Walter Jones) read a letter from Professor W. Hillhouse (the president) regretting his unavoidable absence. Dr. Buller (who is not a stranger at the gardeners' meetings) gave a lucid and interesting description of numerous parasitic plants. Some notes on this address we shall print next week.

Cyclamens from Keighley.

Writing from Devonshire Park, Keighley, Yorkshire, Mr. F. R. Hayes says he has had a good show of blooms from November up to the present time. "Some of the plants are carrying as many as seven dozen well developed flowers." Mr. Hayes enclosed a bunch of the flowers with some foliage. They are of the "Giant" type, and the blooms before us are equal to the finest we have had the privilege to see this season. They are indeed creditable, and the foliage is large, thick, leathery, and dark.

Sweet Pea Society: Provincial Prizes.

The committee of this society has arranged with the Wiltshire Horticultural Society to include in the schedule a special class for Sweet Peas, for which the National Society will provide the prizes. The show will be held on August 10. The class is identical with the Audit class on page 19 of the N.S.P.S. schedule, and all members of this society may exhibit free; others on paying the usual fees of the Wiltshire Society, of which Mr. Leonard Sly, Salisbury, is the secretary. The total prize money offered by the N.S.P.S. is £3 2s. 6d., and a silver medal to the winner of the premier place. Mr. Sly will send full particulars. The society has also been able to arrange with the Galashiels Horticultural Association for a class on behalf of northern growers, the prizes being identical with those in the previous case. The class here is similar to the Classification class on page 19 of the N.S.P.S. schedule, and it will be contested on September 10. Members of the N.S.P.S. are entitled to exhibit free of special entry fee. The secretary of the Galashiels Horticultural Association is Mr. James Mallen, Galashiels, N.B., who will be pleased to send complete details of the class.

† 8 to 12 inches deep and 2 feet apart, pouring into each hole 2 ozs. of the bisulphide.

Greenhouse Construction.

At a recent meeting of the Chicago Florists' Club a letter was read from the King Construction Co., Toronto, on this subject, and some of the American trade papers have printed the lengthy communication. The matter may be interesting to horticultural builders in our own country.

Croydon Gardeners.

The Croydon and District Horticultural Mutual Improvement Society held its usual fortnightly meeting at the Sunflower Temperance Hotel, George Street, on March 1, when a capital paper was read by Mr. W. Harris (Messrs. J. R. Box and Co., Croydon) on "Hardy Summer and Autumn Bulbs." The next meeting on March 15; Mr. G. Massee, V.M.H., F.L.S., will lecture on "Fungi."

Agricultural College, Mich.

The horticultural department is adding to its equipment a laboratory, in which vegetable gardening machinery, such as seeders, cultivators, hoes, weeders, &c., will be tested. A part of the laboratory will be an experimental laboratory for spraying apparatus. An appropriation has been made for a greenhouse to be used in connection with the horticultural department. Garden and vegetable seeds will be started here preparatory for the outside garden work in the spring.

Leeds Paxton Society.

The annual social and dance in connection with the Leeds Paxton Society took place at Morris's Dancing Academy on March 2. There were about 150 members and their lady friends present, when a most enjoyable evening was passed. The occasion was chosen to present the chairman, Mr. William Moore, gardener to H. J. Bowring, Esq., Stedbow, with a handsome gold Albert with medal attached suitably engraved, subscribed for by the members of the society in recognition of his valuable services during the past nine years as their chairman.

Proposed Gardeners' Association.

At a meeting of the Provisional Committee held on March 9 it was decided to arrange for a public meeting of gardeners to be held in London on the second day of the Temple Show (June 1), when a scheme for a National Association of Professional Gardeners will be submitted for approval. It was also decided to ask for donations to enable the committee to print for circulation all over the country a pamphlet setting forth the main objects for which the association is to be formed and the advantages of co-operation and registration. Donations should be sent to the secretary (pro tem.), Mr. W. Watson, Descanso House, Kew Road, Kew.

N. P. S.

The National Potato Society has just issued a four-page circular stating the principal objects for which it has been formed. This also contains "Suggestions for Conducting Trials of Potatoes," "Brief Notes on Potato Disease" (*Phytophthora infestans*), together with a note on the "Work of the National Potato Society," and a page of rules. We have already urged those of our readers who have any interest in Potato culture and the industry which hangs upon it, to send a small subscription (1s. or 2s. 6d.) to Mr. Walter P. Wright, Postling, Hythe, Kent, who is secretary, and who will then, we feel sure, supply such circulars as this to those who solicit them.

The Devon Daffodil and Spring Flower Society.

We are asked to publish the following letter: The committee of the newly-formed Devon Daffodil and Spring Flower Society being anxious to make their first show a success by getting exhibits from all parts of the country, venture to hope that *Journal* readers may be able to enter in some of the classes. The prize schedule will be found to contain classes for Daffodils, beside flowers, flowering shrubs, and stove and greenhouse plants, beside which the committee are prepared to award the Society's Certificate to any new flower not in commerce if the majority of the judges so decide. The Rev. S. E. Bourne and Mr. F. W. Burbridge have kindly consented to act as judges in the Daffodil classes. The first show is to be held on April 12 and 13 next in the Guildhall, Plymouth, and all entries must be made not later than April 5.—R. H. PARLBY (Captain), CHARLES WILSON, Joint Hon. Secretaries, 4, North Hill, Plymouth.

Essay Prizes.

The Croydon and District Horticultural Mutual Improvement Society are offering prizes for two essays—1. Birds of our Gardens; 2. Pruning and Training Hardy Fruit Trees. Further particulars are obtainable from Mr. Harry Boshier, 62, High Street, Croydon.

Books Recently Published.

So many horticultural books are published in these days that a busy editor finds it difficult to review each one. Amongst those recently sent to us, and awaiting their turn to be noticed, are "Flora and Sylva," a beautifully produced work; the "Fruit Garden," the latest publication of the "Country Life" Library; Dr. Griffiths' "Treatise on Manures" (7s. 6d., Whittaker and Co.); and "Systematic Pomology" (Orange Judd and Co., New York).

Visit of a Californian Pomologist.

Mr. Leonard Coates, of the "Pacific Fruit World" (Fresno, Cal.), sends us the following note:—"I am arranging to start on an extended trip to England with my family. I should like to meet with your editors personally. A comparative study of British methods, after nearly thirty years' practical experience in Californian horticulture, is something I anticipate with a good deal of pleasure. We go via Panama for the long ocean trip."

Weather in South Perthshire.

The weather of the second week of March has been an improvement on that of the first. Dull cold days with bitter east winds were followed by abundant sunshine and some very fine afternoons. There has been frost on every night of the past week with the exception of that of the 12th, from 4deg to 10deg having been registered. There was 5deg on Monday morning, and the day was calm and bright.—B. D., S. Perthshire.

Weather Notes from Newton Mearns.

March has come in "like a lion," and not like the March's we have of late years been accustomed to. Instead of the usual wet, we have had the first week in snow, with cold, north-easterly winds blowing each day. Frost has been keen; in some places we have heard of 15deg for consecutive nights. The second week has been an ideal one: very like the spring weather that London gets. If it were not for the frost in the mornings (12deg to 15deg F.) we would say that summer has come! Every day of the week we have had ten hours' bright sunshine and temperature above 50deg. Such climatic conditions prevailing so early in March are unusual. Although the sun is strong, and every encouragement is given for vegetation, still the keen frost in the mornings is keeping things in their places, and we only now wish for a continuance of the present conditions, so that in the future months checks will be little heard of.—N. R., March 12, 1904.

The Sale at the R.H.S. Garden, Chiswick.

The history of the Royal Horticultural Society's garden at Chiswick is nearly over, but another item, while the garden yet remains, is the record of the sale of its vegetative stock on Thursday, a week ago. The occasion affords an opportunity for sentimental expressions of regret; but sentiment has been—probably has had to be—notably absent in the relinquishment of this richly famous London garden, and we shall do well to simply note that a sale took place, and the trees and shrubs are now on their way to various quarters. A poster announcing the event at the entrance gate to the garden stated that there would be offered "250 bush Apple trees, 4ft to 9ft; standard Gooseberries; 100 fan-trained and other Peach trees; and a fine selection of 150 Rhubarb stools in choice variety." Further, "Box edging, border shrubs, Yuccas, golden Privet, Ivy; an assortment of greenhouse plants, including 400 Palms, specimen Camellias, and bedding Geraniums; also Strawberries in pots, and 100 choice Fig trees, 3ft to 9ft, in pots, to name." Such was the summarised inventory, and we have not seen a complete catalogue. On Saturday last, however, we were able to note the "lots" marked out with stakes, the fruit trees having been turned up here and there to show the condition of their rootage (which was good), and the numerous blanks showed that part of the purchases had already been removed. From an inquiry we learned that but few persons attended the sale, and bidding ruled very low, the famous Fig collection selling at about a quarter its value.



Roses Under Glass and Outdoors.

To have a supply of Rose blooms the greater part of the year is a comparatively easy matter if one has a Rose house, or even a cool greenhouse, in which to plant such free-flowering sorts as Niphetos, Sunset, Catherine Mermet, Maréchal Niel, Gloire de Dijon, and others. It is wise at all times to prepare a border for them to grow in, and to make it in a similar way that one would make a vinery border, although on a very much smaller scale. If possible get turf from rich alluvial soil, and if it is of a firm texture it will suit all the better. Chop it down with a spade, and to every barrowload mix in 2lb ground bones, a shovelful of sheep or cow manure, the same of bruised charcoal, and a dash of clean sand. Allow it to lie a few weeks in a heap, before placing into the border. When properly treated they grow very quickly into good specimens, and by the second year dozens of newly-born blooms and scores opening may be had in April, their delightful odour making the toiler feel a joy within him that words cannot well express. Some of the best crops of Roses of the leading varieties I have ever seen were growing in a deep, black, rich loam, resting on a blue fireclay substratum. They were watered regularly in the growing season with liquid manure made from sheep and pigeon manure, scot, and a little ammonia added.

Gloire de Dijon is, I consider, the giant of the family, and is the one best adapted for either inside or outside walls or standards. However, I may say that I have seen many of the strong growing hybrids do extremely well trained on an outside wall, of such sorts as Duke of Edinburgh, Ulrich Brunner, Paul Neyron, and others. No one who has a wall to cover need be afraid to try them, and they will very soon prove they are vastly superior to many of the delicate Teas for a show of bloom, and are never injured with frost in that position. For pot culture Teas are the best: besides being useful for cutting they enliven the conservatory in springtime, and everyone who owns a greenhouse ought to grow them, more or less.

When repotting these Teas use a soil similar to that already recommended, thoroughly firming the soil with a rammer. When making their growth they are high livers, and luxuriate in being regularly fed with liquid manure, which assists in promoting large blooms. To have permanent success with hybrids, and to enjoy the full wealth of their beauty outside, before planting, choose a spot where they will get shelter from the prevailing winds of the locality, but especially from cutting east winds.

This can be done by planting a hedge of any quick-growing plant. As regards soil, some authorities seem to think that a stiff, clayey soil is the best in which to grow Roses, but if long life is aimed at I very much question the soundness of this theory. My experience is that they are apt to produce very soft and badly ripened wood, and exceedingly rank in wet seasons—and we all know the evil effects of that after a severe frosty winter. When it can be procured I decidedly prefer a deep, friable, mellow loam, about 2ft deep or so for Roses, neither too light or dry or too clayey, but a good holding loam. Certainly it is an advantage if the subsoil is of a good clayey nature, and that it is well drained, so that it will not retain water to sour it.

At the same time, fairly good Roses can be grown in most soils if, when planting, they get some good turfy loam put in along with them. When grown in a deep, loamy soil, the wood is generally far better ripened, and they come through the rigours of winter uninjured. Opinions differ, and there may be exceptions, but I venture to say that they will even live longer in this kind of soil than in a stiff, clayey soil, and this rule will generally hold good. Another thing necessary for Roses is a good mulching of cow manure in autumn. Besides giving them nourishment, the homely jacket helps, to a great extent, to keep John Frost at bay.—J. C. D.

Hardy Plant Notes.

Crocus Tommasinianus.

There is always something very attractive about the little *Crocus Tommasinianus*, a bonnie harbinger of the spring, which early comes to brighten the rockwork or the grass with its small flowers. Compared with some of the giant varieties of *Crocus vernus* it is puny in size, although not so tiny as such a *Crocus* as *C. minimus*, but it has about its blooms a colouring of the exterior which none of the numerous varieties of that

well-known species can approach. This is described by Mr. George Maw as "sapphire-lavender," and one may accept his description as nearly approaching the possible in colour analysis as may be. There is about this external colouring a graining, however, which makes such a statement far from complete, and even the plate (xxv.) in Mr. Maw's magnificent monograph does not do justice to this.

The interior is of a deeper shade, and is free from the graining of the outside, so that the flowers present to us a pale grey tinged sapphire when closed, and a brighter tone when open to the sun. There is some variation in the colouring of the inside of the flowers, and some varieties have been selected for sale under a varietal name. I have some four forms or so in my garden, and it is not easy to look at these and say which is the most charming of the set. When fully open in the scant sun of late February or the more plentiful sunshine of March a good-sized clump is most delightful. Many a time has the writer stood over one of these clumps to admire at leisure the bright flowers, with their orange anthers and stigmata, open to the warmth of the sun, with, mayhap, a number of bees struggling among the blossoms in search of the hidden stores they yield to these industrious insects.

It is no fault, but a great recommendation of this sweet little *Crocus* that it is a good grower, and increases freely both at the root and by means of seeds. It produces seeds much more freely than many of the others, and here and there some stragglers from the camp have come up away from the mass so as to form the nucleus of new colonies. Mr. Maw records it as flowering rather later than *C. vernus*, but with me it blooms in advance of the greater number of the varieties of that favourite *Crocus*. It comes from the east of the Adriatic, and is found in Dalmatia, Servia, and probably in Bosnia also.—S. ARNOTT.

Dwarf Potentillas,

Potentilla lanuginosa is of shrubby or sub-shrubby habit, and is very ornamental at all seasons except in winter, when it loses its pretty, silky-looking, neatly formed leaves. It is of sub-prostrate habit, and while its branches may be a foot or so long they never rise to more than 6in or so in height. The flat flowers are bright yellow and about an inch across, and are produced mainly at the ends of the branches. It is a very distinct Cinquefoil, not at any time a very free bloomer, and seems to require establishing for a year or so before it comes into flower. A native of the Caucasus, it appears to like a dry and sunny position in sandy peat.

POTENTILLA DAVURICA, classed as a variety of *P. fruticosa*—a somewhat tall-growing plant when fully developed—is distinct enough for specific rank, as has been allowed by some. The habit is shrubby, and forms low, rather creeping tufts of neat green foliage. Here, after being grown for several years, it has never reached a foot in height, and makes a capital rock-garden plant. The flowers are lighter in colour than those of *P. fruticosa*, and it forms, taking it as a whole, a most desirable plant for the rock-garden, being perfectly hardy, and is easily increased by means of division or by cuttings. Introduced from Daurica in 1824.

Of somewhat different habit from some of the other herbaceous Cinquefoils already named, *Potentilla alba* is yet deserving of a place in a large collection. It flowers for a long time, coming in in moderate seasons about March, and lasting for about six months in flower. It is of procumbent habit of growth, and has pretty white flowers, brightened by an orange ring at the base, and nearly an inch across. The leaves are green above and silky beneath. It comes from the mountains of the Alps and Pyrenees, and has been in cultivation for a considerable number of years. It grows in ordinary soil, is increased by seeds or division, and grows to about 6in high.

POTENTILLA ALPESTRIS.—Another of the rather numerous yellow Potentillas, and is a neat little species with five or seven leaflets on each leaf, and with bright yellow flowers almost an inch across. It is only 6in or 9in high, and is more erect than the foregoing plant. It is very easily grown in either the rocky or the border, and makes a pretty plant when in bloom. It flowers generally from July onwards. It is a native species, and occurs also on the mountains of other parts of Europe.

POTENTILLA REPTANS, a native wilding, is so aggressive in its ways that it should never be introduced into a cultivated garden, though it may be allowed space in a wild one. It is mentioned at present more by way of caution than of recommendation, pretty as are its bright yellow flowers. It runs about so freely by means of its Strawberry-like growths that it becomes very troublesome. One occasionally finds its double form offered in catalogues, and now and again I have met with it in gardens. It possesses the same troublesome habit as the single form, and is not a plant which one can advise anyone to have anything to do with in the garden.

Although *Potentilla formosa* has rather too long flower stems to come well within the description of a "dwarf" Potentilla, these are of semi-prostrate habit, and when left alone do not rise more than a few inches in height, while they will also hang over

rockwork. It is one of the brightest and best of the genus, what is known as the typical form; also called *P. nepalense*, having what are called "cherry-red flowers," although they have a tint of purple or magenta about them. The species is variable, and flowers ranging from deep red to coppery yellow are to be found among seedlings. It is probably from this that such plants as *P. Tongnei* and *P. Hopwoodiana* have been raised.—S. A.

Watercress Culture.

We reprint these notes in answer to the request of a correspondent:—A good deal is heard from time to time about the value of irrigation in some of our Colonies. It has also its value at home when the right men turn it to the best account, as circumstances may favour, and grow the right kind of crop in the right way. It is just a question of brains, and nothing more, as to whether certain sites shall remain practically valueless, or be made valuable to the owner, tenant, manual worker, and vendors of the products of their judgment and skill. An unlimited quantity of water may flow from the chalk for centuries, and riches be washed away. It has been so; but the time comes when the right man arrives on the scene, and turns the long waste of water into a source of wealth. He may do this in various ways, including the growing of Watercress, and this then is the crop which in certain localities is profitable alike to

owner and tenant—the crop that is worth the while of a *ci-devant* worker with bricks and mortar to pay £65 an acre for the site on which he has taught himself to grow it; and, what is more to the point, by growing it and other crops, such as "Hot and Cold," Cucumbers and Mushrooms, has in the course of a very few years indeed made himself independent of landlords by becoming one himself.

The photographic illustration shows a patch of two or three acres, but as it gives an output of as many thousand pounds a year, it is worth mentioning; but—and here comes the point—the land had been very much of a bog from time immemorial, and worth little. Noticing a continuous stream of chalk water not far from its source, and finding by the thermometer during a sharp frost in winter a temperature of 37deg, it was thought this liquid warmth might be turned to account. The land was therefore secured, and now gives an annual yield of some 300 tons of sweet and profitable "Watercress." Why did it lie so long idle in comparison? The man with the thermometer had not arrived. He bought the land, formed the "beds," and is now reaping the reward of his keen observation, judgment, and skill. He is "in the picture," but like the modest man he is, as far in the background as possible, as the central distant figure of the work he has done so well. Let it not be supposed that in what has been stated we are at the end of the work of this genuine working man. It will be a matter of surprise to those who know him best, if within the short space of a couple of years, and he continues to enjoy the blessing of health, he does not have a return of £10,000 a year by the sale of "Watercress," apart from his Cucumbers, his Mushrooms, his "Hot and Cold," and other subsidiaries, which an earnest, zealous, sensible man who loves his work with an ardency that defies failure, continues to produce. Enough is said at present, and a little more may perchance follow when the fates favour, on the reclamation of another swamp, and transforming it from absolute worthlessness into an area of productivity such as is not common even in these times of earnest striving to make the best of the land.

Spring-planted Strawberries.

The universal belief that in order to get a good crop of fruit the first year Strawberries should be planted during August or September, is undoubtedly a sound one, and a common method of treating these planted in spring is to remove the flower trusses the first season, to enable the plants to get strong for fruiting the following year. There are circumstances, however, under which it is quite possible, and indeed advisable, to get a fair average crop from a given space the first season, even with spring planting. The practice is, however, only to be commended for adoption in private gardens, where thorough culture can be given, and the utmost has to be made of limited space.

We have had just reason to complain bitterly of the wet, sunless weather of the past year, which has had such disastrous effects upon crops generally, but a continuance of wet weather during spring and early summer is often favourable to particular crops, and it is then just as well to take advantage of the circumstances. Early in the August of 1902 I had the rubbish removed from a



Beds for Watercress Culture.

Strawberry bed, and as I wanted a number of plants for setting out the following spring in a position which would not be ready for them till March, a few hundreds of strong, well-rooted runners were lifted and planted 6in apart in a nursery bed. The weather was then showery, and the plants scarcely felt any check from transplanting, and they soon began to grow vigorously.

Throughout August and September, and during early October, the surface soil was frequently stirred with the hoe whenever the weather was favourable, and during that time two dressings of superphosphate were given. With this treatment the plants were in splendid condition for passing through the winter—strong, sturdy, and thick in the leaf, which I attribute to a great extent to the constant hoeing, and superphosphate. It is wonderful what a little extra attention in such directions will do with Strawberry plants. Too often they get very little attention after they are set out, so long as the soil is free from weeds, and under such conditions they grow fairly well, but the hoe will always pay for using in the shape of increased vigour and hard, well-ripened growth.

About the middle of the following March the plants were set out in an open position, the soil having been previously deeply dug and well manured with short dung, with a little steamed bone flour worked into the surface. Every plant was lifted with a nice ball of earth, and they were set a foot apart each way, the soil being made very firm around them, as it was somewhat light though deep. April was a wet month, but the weather improved a little during May, and in June we had a couple of fine dry weeks. Hoeing was practised whenever favourable opportunities occurred, and the surface soil was kept free from manure or straw until the fruits began to colour, then the bed was strawed in the usual way. While the fruits were swelling, two light dressings of nitrate of soda were given. The result was that we gathered from that bed quite as heavy a crop of good fruit as one of similar size will often produce the second year after planting, if the plants are set out at the usual distances. After the fruit was gathered every alternate plant was lifted and destroyed, and the

soil top-dressed with short manure. Throughout the summer hoeing was frequently practised, and one dressing of superphosphate was given in August. At the time of writing, March 7, the plants look particularly promising for this year's crop. I thoroughly believe in the practice of manuring the beds when they are cleared after the fruit is gathered, instead of waiting till the autumn, as I contend that it is during the summer that strong crowns are formed which contain the flower truss in the embryo. —OLD FRUIT GROWER.

Dewsbury Park, Yorkshire.

Arranged on each side of a span-roofed house there is a collection of over 300 Primulas in large flowered and stellate varieties, with an admixture of Hyacinths, Tulips, and choice Daffodils. A choice collection of Dendrobiums suspended on the roof greatly enhances the display.

The Primulas are strong and sturdy plants, many of the blooms measuring 2½ in in diameter. As a selection of varieties may be interesting, I name a few from Messrs. Sutton:—The Duchess, a novelty which is becoming well known; Giant White and Giant Crimson, both very fine. Messrs. Cannell were represented by Cannell's Pink, splendid in every way; Cannell's White and Miss Doris, a fern-leaved form, white flaked with lilac. The terra-cotta coloured variety, Mars, from Messrs. Clibran was very good. Duke of York from Messrs. Bull was not so large as the varieties noted, but very rich and attractive in colour, which when first expanding its flowers approaches in colour the well-known Henry Jacoby "Geranium," and a double form of the same colour, which had appeared amongst this batch, was worthy of note. Bull's Imperial Blue appears to be a good grower, and was represented by some finely-flowered plants. A chance seedling with large white flowers, and edged with lilac, was very striking. The leading forms of Primula stellata were represented, the best being Lady E. Dykes, white, with dark foliage; Princess Eva, also white; while Gipsy Queen was the best coloured variety. The "Stars" are certainly useful for many purposes, but when seen in close proximity to choice, large-flowered varieties they look decidedly less satisfactory.

Among the Daffodils Princess Ida, which may be described as sulphur in colour, was pleasing. Maximus, Ard Righ, Sir Watkin, Golden Spur, Sulphur Phoenix, Henry Irving, and Barri Conspectus were very fine, and all demonstrated their fitness for gentle forcing. Amongst the Dendrobiums were some extra fine selected forms of nobile. Dendrobium primulinum giganteum was very striking. Plants for future displays comprise a fine collection of named Azaleas, Calceolarias, Cinerarias, Amaryllis, Pelargoniums, and other plants.

It is greatly to be regretted by horticulturists that the Dewsbury Town Council do not provide a conservatory in this otherwise well equipped park, for a span-roofed greenhouse may be perfect for growing plants, but is most certainly inadequate for properly displaying the fine batches of choice plants which are annually grown by Mr. Daniells, the energetic superintendent.—S.

Cultural Memoranda.

East Lothian Stocks.

Seed of East Lothian Stocks and Ten-week Stocks, if wanted early in bloom, may be sown in pans or boxes placed in gentle heat. When the seed germinates give cooler treatment. They are of rich interest in any garden.

Achimenes.

Though found in most well-kept gardens, I consider that Achimenes are worthy of more attention than is usually bestowed on them in most places. Being especially adaptable for basket culture, they form striking subjects for conservatory decoration, and if well-grown continue to bloom for a considerable time. They are also useful for pot culture, although they appear more natural when grown as basket plants. I consider the best method is to start the corms in sand, in a temperature of from 65deg to 70deg Fahr., placing the pans, in which the corms should be placed, close to the glass to prevent them becoming "spindly." When about 2 in high they should be transplanted into the baskets filled with soil, composed of equal portions of loam and peat, with enough sand to keep it open, placing a suitable number of plants in each according to the size of the basket, also pricking some in round the sides. They should then be grown on in a slightly lower temperature, allowing the outside plants to trail over the sides and tying the centre ones to sticks. When commencing to bloom they should be removed to a cooler house or conservatory, and if necessary fed a little. When showing signs of ripening off water should be gradually withheld, and

when this process is completed they should be stored away in sand in a dry and frost-proof position. For pot culture six or eight plants to a 6 in pot is advisable, taking care that the drainage is perfect.—E. B., South Berks.

Dahlia Culture.

If the Dahlia tubers have not yet been started no time ought to be lost in doing so, if they are wanted for propagation. They should be started on a half-spent hotbed, keeping them close until they begin to break; then a little air should be afforded to prevent their being drawn. So soon as the growths are about 3 in long they should be taken off with a piece of the tuber to form a heel. Take care the cuttings are not "pipey," or they will not root. They may be put singly into a light soil in small 60-size pots, and be placed in a bottom heat of 65deg to 70deg F. They are then grown on under glass and finally hardened off before being planted out. The tubers may also be divided, but each part must have an eye attached. Cuttings struck in summer form pot root for another season.

The ground where the Dahlias are intended to be planted out should be well trenched and have a good dressing of manure in winter. If the manure is put in at the time of planting, rank growth will result. The best time to plant out is the end of May or the beginning of June, in rows 5 ft each way—if in a bed. When planting, just cover the ball, and when the plant is established the soil can be pulled around the plant to form a bay for watering if necessary.

So soon as the Dahlias are planted they should have a stake put to them to prevent them being broken by rough winds; and when growing they delight to have liberal supplies of liquid manure. Thinning out is generally desirable when large blooms are required, and blooms must be protected from winds, storms, and hot sun if they are to be kept back for show. The top of a handlight may be used for this protection, or card boxes answer the purpose if the former is not obtainable.

The greatest enemy to the buds is the earwig, but a pot half filled with moss placed on the top of the stakes and searched daily will be the means of catching a great number of these insects. When the frost destroys the foliage it is then necessary to cut down the stems to about six inches and to lift the tuber. Do this carefully, and dry them slightly before storing them in a dry, frost-proof place; cover them with a thin layer of dry leaves to be sure of protection. They should be seen to several times during the winter months, to see they are not rotting.—G. B., Berks.

Gardenias.

Gardenias are now showing their flower buds, and will require a little feeding. I find that Clay's fertiliser is a very good stimulant, with a change to Bentley's Rose and Carnation manure; also, soot water. The pots, being full of roots, require ample feeding to produce large and beautiful flowers. A few waterings of these manures will give the plants a healthy appearance, with dark green, leathery foliage. I find the following a very good way to grow these plants: Take the cuttings in March, inserting four into a small "60's" round the edge of the pot, and use a light compost of half loam and half leaf soil, with a good sprinkling of silver sand. Place them in a propagating case or a handlight, and they will soon root. Now pot them off singly in "60's," at the same time pinching the tops out.

By June pot them on again into "48's," using nice fibrous loam, a little leaf soil, peat, and silver sand. Keep the plants in a stove temperature, and during the winter months maintain them well on the dry side, as great care must be given to the watering. By January and February they will have formed their buds, and so soon as they have flowered cut them down to about four inches; water very carefully, and keep them well syringed. They will break more quickly if plenty of moisture is kept about, with the thermometer at 70deg by day and 65deg by night.

Early in April they will be ready for repotting. Shake them well out and pot them into 8-inch pots, using three parts good fibrous loam and one part leaf soil and peat, with a good sprinkling of silver sand. Pot firmly and they will soon make fine specimens. Stake them out as required. By August and September they will have sufficient rootage for ample feeding, and during the next three months clear, soft, tepid water only must be used, giving a good soaking about once a fortnight.

Plants grown in this way will flower freely and give every satisfaction. After the second or third year's flowering throw them away and keep up a young stock of healthy plants. As every gardener knows, the Gardenia is, like the Stephanotis, subject to mealy bug. I find very little trouble in this respect. From the cuttings you must keep a sharp look out for this little pest, and at the least signs of bug I find the following a very good remedy: Mix in every four gallons of soft warm water a 60-sized pot of paraffin oil; keep well stirred; they lay the plants down and syringe them well on all sides. A few dressings in this manner, and you will have practically little or no bug or scale, and the plants will be none the worse. As the paraffin always flows on the surface the whole must be kept well mixed up. All stove plants I syringe in the same way, even after sponging, in order to give them a bright appearance.—W. B.



East-Lothian Stocks. (See page 234.)



The Umbrella Pine.

In the *Journal of Horticulture*, February 25, page 160, I read of an Umbrella Pine at Hewell Grange, Glos., measuring 16ft high, and which was thought to be large. It might interest the writer to know that in Ballyarthur, Co. Wicklow, the residence of Col. Bayly, there is a fine specimen, and of good shape, measuring 24ft high, with a circumference of 41ft of growth at the base, which has of late years been exposed to the north and east winds. There are also many fine specimens of other trees on the estate.—J. McCLEAN.

Chrysanthemum, Winter Queen.

The few blooms of this Chrysanthemum which I send, were taken from a vase, after being cut seventeen days. When first cut they had stems from 18in to 2ft long, but by changing the water alternate days and reducing the stem a little each time, they are now only 1ft long. For some days the vase of blooms was placed by a radiator, and the room was warm. This proves that Winter Queen is all that Mr. Godfrey claims it to be. Personally I think it the most lovely late white Chrysanthemum there is. The blooms last for a very long time on the plants, and are of the purest white, and of lovely form. The stems are stiff and wiry, and they are clothed with just the right sized leaves, and not too thickly, this being a great help to its good lasting qualities. The three plants we had were grown like the ordinary bush plants, and were pinched several times, and upwards of a dozen shoots were on each plant. These were disbudded to one bloom each. If two plants were grown in a 10in pot, and thirty blooms were produced, these would make a very profitable and beautiful specimen. I still have two vases of Prince of Pinks in the house, of good colour, but the plants are not of such a good habit for cutting as Winter Queen. If the latter sports at all I hope it will give a good light pink, which will be valuable for February and March. Mrs. Swinburne, which sported last year a beautiful yellow colour, is named Mrs. George Beech.—A. JEFFERIES, Moor Hall Gardens, Essex, March 12, 1904.

[Mr. Jefferies sent some good flowers considering the late date and the long time they had been already cut.—ED.]

The Vitality of Seeds.

Under this title a number of correspondents have been stating their views in the columns of the "Standard," London. One of the latest of these was Mr. Martin J. Sutton, of Sutton and Sons, who has also favoured us with his views expressed there. Mr. Sutton, after preliminary observations, goes on to say:—"Some five-and-twenty years since I read a report, written early in the nineteenth century, from an Indian Government official, calling attention to the fact that he had had seeds raised by his gardener in his English country home for his use in India; that while some of these seeds had proved excellent, others were absolutely worthless. On inquiry he found that in the one case the pods containing the seeds had been hung up in the chimney corner of the kitchen of the English mansion for some time, and the seeds placed, while warm, in bottles and sealed. The seeds that had failed, although dried in a similar way, had not been bottled for a considerable time afterwards. This hint was sufficient to start me on a long series of experiments, having for their object the safe elimination of the excess of moisture which all seeds contain as harvested in the English climate, however dry they appear when handled. This moisture has been a cause of very great trouble when English seeds, packed in hermetically sealed boxes, passed through the tropics, where the heat in the ship's hold caused the seeds to sweat and become mouldy.

"Naturally, I found there was a very great diversity in the amount of such moisture contained in the different varieties of seeds, and that, while some seeds could safely lose an amount of moisture equal to 10 per cent. of their weight, others could not part with more than 5 per cent. without injury; consequently the degree of dry heat to which seeds could be safely exposed, and the proper duration of such exposure before packing, varied very much, while some seeds required much more gradual desiccation than others. But before the experiments were completed, knowledge on these details was acquired, with the result that

there seems hardly any limit to the period during which the germination of seeds may be conserved if they are properly prepared by drying in a suitable high temperature and hermetically sealed in that temperature.

For many years past seeds thus packed by my firm have been successfully used in all climates, and the box your correspondent mentions was one of those which every agent of the Church Missionary Society, the London Missionary Society, and the Baptist Missionary Society receives annually, containing seeds for his personal use in mission gardens from the tropics to the Arctic Circle.—MARTIN J. SUTTON, Reading, February 23."

Gardeners and the Study of Botany.

Clearly my remarks regarding above have touched a sensitive spot in "An Old Bothy Boy's" composition. I regret the offence, and I assure him it was not my intention to create a fire of indignation, or stir a "hornet's-nest" about my own ears. I am, however, amazed at the tone and confession of his letter. I thought the days were past when gardeners so stontly denied the great advantages of botany in gardening. The times to which my remarks referred were not yesterday, and I know a mighty revolution has swept over the gardening world since then, and truly I was very much struck with the last century ideas he expressed. Botany less essential than any other science or aid! to myself is a most astounding assertion. As well say one can successfully practise medicine without physiology. What is botany, and what is gardening? Are they not so intimately combined that separation is impossible? If, of course, one reduces gardening to the indignity of "earth grubbing" and nothing more, perhaps "O.B.B.'s" ideas of the noble art and its relations to botany may be nearly correct. He puts more stress upon the acquisition of Latin (why not Greek?) and geometry as aids. All that he enumerates in this connection I agree with as useful to the gardener, but none more so than botany.

Latin, or any other language, however, has a higher purpose than that ascribed to it by "O.B.B." What we learn these languages for is to solve the riddle of the names. We may never acquire the proper pronunciation, though we may be tolerably good linguists. It is a moot question what value the ancients gave to certain vowels in pronunciation. That being so, "O.B.B.'s" pronunciation, however defective, will invariably pass muster at any time. There is more in the study of botany than "O.B.B." has yet been enabled to discover. Apart from the instructive knowledge it imparts of plant life and structure, it spurs our naturally indolent minds to enter into other subjects immediately connected with it, very especially Greek and Latin and Celtic. What is in a name? is a question one often hears. Verily, I say that in this particular field of nomenclature there is indeed a world of knowledge, instructive and useful, to all who take even a tyro's interest in plants. Surely this is at least partly known to "O.B.B."? If not, he has got along so far in blessed ignorance of the greater half of the beauty of his profession.

"O.B.B.'s" reference to my botanical expeditions are made just in the manner that my quondam unbotanical friends were wont to do, and he unblushingly insinuates that bogs, fens, or dens would have much less interest for me if I had more work to perform during the day. And further, goes the length of supposing that it was I who really hungered after the "refreshment bait." Well, as for the truth of the latter, recent disclosures, as ventilated in the "Domain" columns of the *Journal*, will suffice. And as to the former, I may inform "O.B.B." that at the time which I referred to I was one of fourteen who had three hours at the scythe before breakfast every morning, wet or dry, throughout the season, and equally severe labour during the remainder of the day. But then I knew not what to be tired meant, and to go a distance such as I stated and back for hammock somewhere before sunrise was never considered by any of the gang of us a very serious inconvenience. No dreamy indolence favoured my early acquaintance with the blue apron. It was, indeed, a most laborious initiation, so much so that I am doubtful if "O.B.B." had he been there, would persevere through.

However, I must not digress, else the editor will be calling a halt; but I must say a few words about the bothy before I close. "O.B.B." appears to have doubts about my reference to the bothy system in relation to the study of botany. Well, if he has seen the effects of intellectual development attributed to the congenial environment of the botany I have not, nor do I know any who ever has. I unhesitatingly repeat that the bothy system is, and must ever remain to be, antagonistic to the development of the higher intellectual powers. Any person who has the least pretension to a knowledge of the matter could never say otherwise. The bothy is just good for its destined purpose—a somewhat convenient habitation for young men whose service and physical powers alone are wanted, without much or any anxiety or consideration for their

intellectual welfare. Of course their morals must look after themselves—fendalism in lamb's clothing. But, of course, it is every gardener's policy to procure healthy sinews to perform the work at a minimum cost, but the economic element must never be exchanged for young men's intellects.—**DIGITALIS.**

Notes on Apples.

Your correspondent, on page 168 of the *Journal*, does well to draw attention to the merits of Duchess of Oldenburg. It may be an old variety, and may be surpassed in some respects by newer sorts, and it may also be too soft for market purposes, yet it is not by any means out of date. For private use it is a good Apple, a sure cropper, and it succeeds well on cold, wet soils—which is a great deal to say in its favour. It is one that should not, at any rate, be dispensed with for some time to come.

His remarks on Potts's Seedling are not in accordance with my experience. I have had no knowledge of it as a standard, but as a bush I have seen it succeed on stiff, heavy soil, making good growth and fruiting well. It is a fine variety and an excellent cooking Apple, and should be grown where it succeeds.

The Old Irish Peach, though rarely seen, is a dessert Apple of some merit, early, and of good flavour; and this variety, growing in the same garden as Potts's Seedling, produced annually good crops of fine fruits that oftentimes formed choice food for wasps. No pruning was given to the tree except an occasional thinning of branches.

Peasgood's Nonesuch is familiar on the exhibition table, but that is not its only merit; it is an excellent Apple for culinary purposes, and should be found in every garden where hardy fruits are grown to any extent. By a proper and rational method of pruning this sort, and some attention paid to its roots, I have seen good crops produced. In pruning Apples some knowledge is required of the peculiarities of some varieties, if the best results are to be obtained. There can be no doubt that many sorts are rendered shy in bearing by the adoption of a ruthless system of pruning.

I have not penned the notes for the sake of adding supplementary praise to the varieties mentioned by "Provincial," but rather to ask him where, in his list of culinary Apples, he places the following:—Lord Grosvenor, Lane's Prince Albert, Ecklinville, Stirling Castle, Warner's King, and many others of like fame. Of course, they may have been mentioned by "Provincial" in previous notes and have escaped my notice; if so, well and good.—S. P., Wilts.

A Potato Plot.

In his sanctum sat the editor, publisher, and proprietor of the "Tattievile Times and Speckedtater"—Tattievile (as everybody knows) across the Hub, 'way down Tuber County. Sadly, yet fondly, he gazed at the last of the Eldorados, a shrivelled specimen, which in its prime had been too precious to plant, now sterilised, fossilised, and blind of an eye as it reposed in a curio case at his elbow. A thoughtful-looking man this editor, and he had to think as well as "guess" and "calkerlate" some too, for times were bad, circulation was low, and something had to be "raised" even in the editorial field of vision, which comprised a big Potato patch waiting to be planted. Dig he could not, to beg such help as he could not remunerate he was ashamed. However, there was a wrinkle in the shrivelled eye of that withered vegetable, and salvation, for Eureka!—he had found it. That night a "special extra" of the "Tattievile Times" went out with a startling notice of hidden treasure. It was the announcement that this globe-famed specimen, the last of its kind (all its kith and kin having been exterminated by the great Hum Bug, which had so savagely attacked the family) was hidden in the editorial patch aforementioned, and all Tattievile, ablaze with Potato spirit and agog with greed, wended its way with pick, spade, shovel, and all kinds of garden implements to seek it. And the earth was moved, never moved so much before; and that editor smiled, hadn't smiled so much for years, as for days and nights his acre was stirred and restirred to the utmost depths of good soil in Tattievile's anxiety to secure the prize. Alas! It was never found—leastways, never acknowledged, and when the hubbub abated that editor went forth with the smile which wouldn't come off, and a dibble, to dibble in a good old eatable kind of Potato, and raise a mighty crop with but small pains and large profit. And things went well with him ever after—so well, indeed, that a massive, many-caratted, gold-cased pendant soon graced the editorial watchguard, which he jealously guarded, and regarded with much veneration. Strange to say, it was singularly alike in form and size to the last of the Eldorados, and—but that's another story.—**SOL. ANUM.**

Societies.

R.H.S. Scientific Committee, March 8.

Present: Dr. M. T. Masters, F.R.S. (in the chair); Messrs. Chittenden, Nicholson, Michael Veitch, Bowles; Drs. Rendle and Cooke; Revs. W. Wilks and G. Henslow, Hon. Sec.

Lobelia nicotianefolia.—A fine plant was exhibited by Mr. G. Paul, a native of Neilgherry Hills and Ceylon. The flowers were white, but the figure ("Bot. Mag.," tab. 5587; 1886) was violet-coloured. A Botanical Certificate, proposed by Mr. Veitch and seconded by Mr. Chittenden, was unanimously awarded to Mr. Paul.

Jasmine with tuberous growths.—Specimens received from Mrs. Street, Woodside, Caterham, were examined by Mr. Saunders, who reports as follows: "It is difficult to account for the growths, as there are no signs of insect or fungus. Growths of a similar appearance occur on the roots of Roses, being caused by the irritation set up by ants."

Palms and scale insects.—Mr. Hall, of Mowbray Park, Sunderland, sent some specimens, upon which Mr. Saunders reports: "The insects unfortunately arrived in a bad condition. (1) a parasitic fly (?), nearly allied to the Ichneumonids. (2) undiscoverable. (3 and 4) two-winged flies (fam. Mycetophilidae) or 'fungus gnats,' as the grubs feed on fungi or decaying vegetable matter; they are of no importance. (5) scale insects, but so covered with germs as not to be identifiable."

Isle of Wight Horticultural.

The monthly meeting was held at the Guildhall, Newport, on Saturday, February 6. The usual meeting room was not considered large enough to accommodate all it was thought would avail themselves of attending this important meeting. In the unavoidable absence of the chairman of the association, Mr. W. W. Sheath made a most capable substitute, presiding over a distinctly good attendance of members, and the public had been invited by advertisements in the Press. The lecturer was Mr. F. W. Shrivell, the well-known authority and expert on chemical manures, and who has delivered many lectures on this subject before most of the gardeners' associations in the kingdom. He dealt with their uses, and the advantages derived by their application to all garden crops.

The next monthly meeting was held on March 5, under the presidency of Dr. J. Groves, J.P. There was a good attendance of members to hear a paper by Mr. W. Triblick, F.R.H.S., Brooks House Gardens, on winter-flowering Begonias. The lecturer gave a brief outline of the history and introduction of the several species and varieties dealt with, which included all the newer forms raised at Veitch's Nurseries, Chelsea, and elsewhere, and after dealing with all cultural details remarked that no class of plant had come so prominently to the front, or been so improved by hybridisers in recent years. These should, therefore, be extensively grown in gardens where there was no limitation as to space and appliances, and in smaller ones should take precedence over other subjects for winter display. Many of them could be grown in an ordinary greenhouse. The next meeting will take place on April 2, when Mr. A. W. Kime will read a paper on some subject to be selected.—W. T.

Chester: Pests and Parasites.

March 5, at the Grosvenor Museum, Chester, Mr. R. Newstead delivered a lecture on "New and Noteworthy Pests and Parasites," being the fifth lecture of the session. As an introduction to the subject, the lecturer gave a brief review of the external characters of some typical insects, and also called attention to their salient physiological features. Several life-histories of the pests were given, with special reference to their occurrence in the county of Cheshire. Some new and interesting facts were given concerning the economy of the "leather jacket" or larva of the crane fly, and the birds which were found to prey upon them; the observations were made during an alarming outbreak of "leather jackets" on golf links near Chester, where many acres of grass had been destroyed.

In the most thickly infested portions of the ground an average of ten grubs were found to the square foot; the crowns of the plants were so thoroughly cut through that the turf, with little trouble, could be rolled up into large masses. But, strange to say, the frequent patches of white clover proved immune, and were left untouched by the larvæ throughout the whole of the infected area.

Some observations on the common wasps were also given, and special reference was made to the Tilbury outbreak of the Colorado beetle. Among the plant parasites reference was made to the comparatively new Potato disease caused by *Chrysophlyctis endobiotica*, which had caused severe loss on the Potato crop in one or two localities in Cheshire during the past three years. (See

"Gardeners' Chronicle," December 19, 1903, p. 417.) The lecture was fully illustrated by lantern pictures, and specimens of the pests which were dealt with. At the close, several questions were asked and replied to, and on the initiative of Mr. G. P. Miln, who presided, Mr. Newstead was accorded a hearty vote of thanks.

Hull: Garden Management.

A very interesting paper on "Gardens and Their Management" was read before the members of the Hull Horticultural Association on March 8, by Mr. Clayton, of Tadcaster. The antiquity of gardens was shown by reference to the sacred writings and to Greek and Roman classics, and the essayist sought to show the nobility of the gardening profession, saying that he was proud of the name of British gardener. The essay was far from being so dry as its title would suggest, for it was replete with good advice in an easily digestible form, and especially to young gardeners. Mr. Clayton spoke wisely and well of the feeling that should obtain between master and man, and explained that the motto "I serve" was in reality a noble one, and involved no loss of dignity if the service was properly rendered. In reply to opinions passed on his paper, the essayist fell into a happy state of anecdote which proved of great interest and profit to all hearers.—W. R.

Ipswich Mutual Improvement.

At the last meeting on March 3, with Mr. E. Creek in the chair, a paper on "Stove and Greenhouse Ferns" was read by Mr. Bullard, foreman at Mr. R. C. Notcutt's, Broughton Road Nursery. The essayist, who showed himself thoroughly conversant with all the details of Fern culture, passed under review the principal genera under cultivation as decorative plants at the present time, mentioning the best species in each genus, and giving many hints as to their likes and dislikes. Particular attention was called to the usefulness of Ferns as basket plants, notably Davallia, Nephrolepis, and Platycerium. Mr. Bullard exhibited a nice little collection of Ferns, including some pretty crested forms of Pteris. After the conclusion of the paper the essayist was vigorously plied with questions, most of which had for their object the elucidation of further information concerning the raising of Ferns from spores. A hearty vote of thanks to Mr. Bullard concluded the meeting.—E. C.

National Potato: Scheme of its Work.

A circular has been issued from which we make some extracts. The principal objects of the National Potato Society are:—(1) To test the varieties and methods of cultivation of the Potato on various soils; (2) To test methods for checking disease; (3) To classify the varieties and to keep a register to check the re-naming of varieties; (4) To hold exhibitions and conferences; (5) To issue reports from time to time on all subjects bearing upon the growth and commercial aspects of the Potato.

SUGGESTIONS FOR CONDUCTING TRIALS OF POTATOES.—Trials of Potatoes can be conducted:—(a) Under farm culture; (b) Under garden culture. They should be directed mainly towards testing the following points:—(1) The relative merits of different varieties, as to cropping, disease-resistance and flavour; (2) The effect of manures; (3) The efficacy of various methods of preventing disease. The committee proposes to select about ten sorts only, including in every trial one variety as a standard for comparison, for which purpose it selects "Up-to-Date." The committee suggests that the plots allotted to each variety should be uniform in size, and at least one square rod in extent. It also strongly recommends that there should be two plots of the above area for each variety, the plots to be in different parts of the area under experiment. It proposes to make its selection of sorts from the following varieties:—Up-to-Date, Sir John Llewelyn, Empress Queen, King Edward VII., Evergood, Northern Star, British Queen, Charles Fidler, Royal Kidney, Ninety-fold, The Factor, Cramond Blossom, Goodfellow, and Scotch Champion, the last named being included not on the score of its intrinsic merits, but because it is the most largely grown of all Potatoes in Ireland. In order to secure uniformity in the seed, the society will, if its funds permit, supply the sets, the crop to become the property of the local sub-committee, less an amount equivalent to the seed supplied. As its funds may not permit of its providing seed for trials in every county wherein it has a representative during the first year, the trials will be confined to selected centres in the following counties, which have been chosen, partly for geographical distribution, partly from the prevailing character of the soil:—Bedfordshire (Ridgmont Experimental Fruit Farm), Berkshire (Reading University College), Cheshire (Holmes Chapel), Essex, Hertfordshire (Rothamsted), Kent (Wye Agricultural College), Middlesex (Pymmes Park), Northumberland, Somersetshire, Surrey, Worcestershire, and Yorkshire. It is also hoped to have at least one station each in Ireland and Scotland. In other counties it is

hoped that other trials may be conducted by the county instructors in horticulture, on these lines, and under the committee's auspices. It is also hoped to include Lincolnshire, the largest Potato-growing county in England.

Cardiff Gardeners'

At a meeting held at the Grange Hotel on Tuesday, March 8, Mr. H. R. Farmer, presiding, Mr. J. Pegler, hon. secretary, representative of the Newport Gardeners' Mutual Improvement Association, delivered the last lecture for the present session, entitled "Wonders and Curiosities of the Vegetable World." At the outset the lecturer said that he had chosen his subject from extracts of scientific works in order to bring them before the notice of the members. Some of the chief items were the marvellous monstrosities of various trees situated in various parts of the world. Reference was made to some of the unique specimens of wood preserved in the museums at Kew. At the conclusion of a splendid discussion the best thanks of the members were accorded Mr. Pegler for his lecture.—J. J.

The Metropolitan Public Gardens Association.

OPEN SPACES.—At the monthly meeting of the Metropolitan Public Gardens' Association held at 83, Lancaster Gate, W., on Wednesday afternoon, Sir William Vincent, Bart., vice-chairman, presiding, a letter was read from the Office of Works stating that as soon as the enclosure in Hyde Park was ready, the ground adjoining Kensington Palace, at present occupied by greenhouses and forcing beds, would be laid out, and opened to the public, by way of compensation.

A communication was received from Mr. William Crookes, M.P., in reference to the proposal of the association to lay out the large churchyard of All Saints', Poplar, if maintained by the Borough Council, stating that the matter was now under consideration, and a similar letter was received from the Islington Borough Council in regard to the Norfolk Square area, which the association had offered to take in hand. It was reported that the tree planting undertaken by the association was in progress in Lamb's Conduit Street and in St. John Street Road. It was decided to draw attention to the Bartholomew Hospital and the Liverpool and Wigan Churches Bills introduced into the Upper House, which propose amongst other things to free numerous disused churchyards and burial grounds from restrictions against building thereon contained in the Disused Burial Grounds and Open Spaces Acts, and it was considered very necessary that an amendment should be secured to safeguard the operation of these Acts, and to prevent private Bills from overriding the general law of the land.

Good progress was reported with regard to schemes for extending Hampstead Heath, and for the acquisition of Springfield Estate, Upper Clapton. It was agreed to oppose the proposal of the London School Board to acquire the interesting Wycliffe Chapel and burial ground, Philpott Street, Stepney, as a school site, at the inquiry to be held by the Board of Education at Philpott Street Board School on Friday morning. It was arranged to provide for the rearing of Poplar trees, of the variety known as *Populus trepida* or *P. nigra betulifolia*, which grow very well in London, but of which no young stock is at present obtainable. Correspondence was read with the Richmond Corporation and others in reference to the proposal to build upon an island opposite Kew Gardens, which it was considered should be strenuously opposed as detrimental both to the river and the gardens. Amongst those present at the meeting were the Hon. Dudley Fortescue, Sir William Vincent, Bart., Admiral the Hon. Sir E. R. Freemantle, G.C.B., the Rev. R. Marshall, Mr. C. J. Stevens, and Mr. Bernard Gibson.

Sheffield Floral and Horticultural.

At the monthly meeting of this society there was a capital exhibit by Messrs. Artindale and Son of Lilacs, Azaleas, Deutzias, &c., in pots; and Tulips, Hyacinths, Narcissus in vases, to which a certificate was awarded. Mr. Baker, gardener to Alderman G. Senior, also exhibited a seedling Amaryllis with a good head of bloom. A valuable and interesting essay was given by Mr. L. Lucas on "The Herbaceous Border," dealing with formation, aspect, most suitable plants and their culture, and the discussion which followed was very useful. Further honours have been conferred on the society. Her Grace the Duchess of Norfolk has become a patron (of which the Premier Duke is the president), and at the presentation of Sheffield's wedding gifts to the Duke and Duchess, which consisted of an exquisite diamond necklace costing £1,000 to Her Grace, and an illuminated address-album and a magnificent dressing and suit-case to the Duke, the secretary of the society (Mr. Lewendon) and the treasurer (Mr. Gillmore) were present by the invitation of the Lord Mayor, and were received by the Duke and Duchess at the Town Hall.

United Horticultural Benefit and Provident.

The annual general meeting was held in London last Monday evening, Mr. Horace J. Wright presiding, when the report of the committee for 1903 (which we must hold over), together with the financial statement, were read and approved. In proposing the adoption of the report, the chairman said that the thirty-eight years' progress made by the society was poor, but this was no reflection on the managers—it was a reflection on the gardeners of the United Kingdom. Mr. Wright, in a later part of his speech, cited the case of a mutual improvement society which had intended to form a benefit society within itself, the members being quite oblivious of the fact that a great gardeners' benefit society, with £22,749 7s. 10d. capital, already existed. One is tempted in this place to ask why the Leeds gardeners found it necessary to establish an opposition society instead of strengthening the already existent body? "The United" has a membership of 1,016; its financial condition is absolutely impregnable, and the benefits of this society over general benefit societies are most substantial.

Mr. Wright quoted figures to show the ratio of increase of membership since 1871, when only forty names were on the books. By 1880 eighty-seven members had joined. From 1880 to 1890 a large increase was made, namely to 353, which was attributed to the efforts of Mr. John Wright by his advocacy in the pages of the *Journal of Horticulture*. In that decade the society had multiplied its previous number by four. Then from 1890 to 1900 it rose to 846; and from 1900 to 1904 to 1,016, equal to a quarter of the actual previous membership. The net gain for last year was fifty.

The chairman next touched upon the question of advertising, and suggested that the surest and best means of reaching the gardeners was by sending a representative to the mutual improvement associations. He thought these bodies would willingly set aside one evening for a discussion so fraught with possibilities to themselves. Comparing one benefit society with another may be odious, continued the speaker, but it was unquestionably educational. Mr. Wright referred to the small amount utilised from the Convalescent Fund (£4 10s.), and showed that the interest on that fund was more than three times as much as the amount disbursed. He thought that ten shillings per week was ludicrously small, and suggested giving a lump sum, or at least a much larger weekly amount. He formally moved the adoption of the report.

In seconding, Mr. C. H. Curtis impressed on the meeting the fact that members accumulate balances which they can draw at sixty years of age, or at seventy, if they wish still to be benefit members. Lapsed members can also withdraw their amounts at the age of sixty. Some of the earlier members had now so much as £117 to their credit. Regarding the society's finances, these are sufficient to pay £22 to every member at the present time, and it was stated that no other similar society could say the same.

Mr. A. J. Brown, School of Handicrafts, Chertsey, also spoke on the report. He was of opinion that the weekly amounts paid from the Convalescent Fund should be fifteen shillings to eighteen shillings at the least. Mr. Brown referred to the National Deposit Society as being equally as good as "The United," with the advantage that in time of distress a member could withdraw part of his money. Men earning a guinea per week could not save money against the contingencies of death, and "The United" provides no death money. He supported the suggestion that the mutual improvement societies be approached, and stated that he had volunteered to address a meeting on the subject of gardening charities and the benefit society. The report was unanimously agreed to.

It was voted that 3,000 copies of the report and balance-sheet be printed and circulated. The members of committee were elected, two new members (Mr. E. F. Hawes, Royal Botanic Gardens, Regent's Park, and Mr. W. Wesker, Wandsworth) being added in place of Mr. T. Humphreys, now of Birmingham, and Mr. S. Summers. Mr. W. Collins was unanimously re-elected secretary, a position he has held for seventeen years. Mr. Collins has been thirty-five years a member of the society,

and most of that period had been in office. Mr. James Hudson, V.M.H., who was absent through illness, was re-elected treasurer, and received a very hearty vote of thanks for his consistent and valuable services.

Mr. John Wright, V.M.H., proposed a vote of thanks to the trustees. By way of adding to the membership he said there was such a thing as every member securing another. He expressed a strong hope that every one connected with the society would, in the interests of the rising generation of gardeners, press the matter on every hand. He hoped it would get richer and richer, and do more and more good, and ended by quoting the toast of the Fruiterers' Company: "May this society grow and flourish, root and branch, for ever and ever."

The concluding piece of business was a formal recommendation made by Mr. A. J. Brown to the Rules Sub-committee (and seconded) to the effect that they consider the advisability of appropriating the sum of fifteen guineas to compensate the committee for their travelling expenses, and to report to a special general meeting to be called in May. This recommendation was at first in danger of falling to the ground from want of a seconder; then it was beaten by one vote, which, seeming inconclusive, another show of hands was taken, when a large



Apple, Northern Greening.

majority voted in its favour. The principle of paying committeemen's fares will thus be thoroughly debated. The secretary's address is 9, Martindale Road, Balham, S.W.

Sheffield Chrysanthemum.

At the monthly meeting some good exhibits of Daffodils were shown, and Messrs. Artindale staged some nice plants of Azalea indica and Lilac. Mr. W. Snowden gave an essay on "Impressions of the Horticultural Traders' visit to Holland and Belgium in 1903," and in his racy style kept his auditors' attention for about an hour, describing the places and firms visited, the peoples and methods, the customs, &c. He gave some very humorous descriptions of incidents during the tour, also of some of the individuals forming the party. Seldom is an essay heard wherein every point is made to tell as was the case in this, or where the rapt attention of the audience is so well maintained, and from the arrangement of matter and the splendid delivery of it one may be excused if he is led to expect that something more may be heard of Mr. Snowden in the future.—W. L.

STRAWBERRIES are to be seen in the fruiterers' windows. A basket of six is marked 3s. 6d.

FRUIT AS A NECESSARY FOOD.—Under this title Mr. Henry Cannell, of Swanley, delivered an address before the Chislehurst Gardeners' Society at a very recent date. Mr. Cannell is a well-known staunch vegetarian, and has splendid arguments in favour of his tenets. The lecture proved to be of great interest, coming from one with such a wide experience.



Fruit Forcing.

CHERRY HOUSE.—When the fertilisation of the blossoms has been effected, the Cherries will be seen swelling at the base of the decayed flowers; then syringing may be resumed once a day until the remains of the flowers are cast, and then twice daily when the weather is clear and warm. Artificial heat must be given to prevent the temperature falling below 40deg at night, and to maintain 50deg as a minimum by day. Ventilate at 50deg, and close at the same, regulating the ventilation according to circumstances, but not allowing a rise above 65deg without full air. If aphides appear vaporise the house with nicotine compound, the foliage being dry when the vaporisation is effected. Keep a sharp look out for caterpillars. Stopping will soon require attention. Pinch out the points of the growths when they have made 4in to 5in of growth, removing those shoots not required. Train extensions in their full length, also those for filling vacant spaces. Overcrowding must be strictly guarded against, it being prejudicial both to the present and future crops.

PEACHES AND NECTARINES: EARLY FORCED TREES.—An equable temperature is desirable during the stoning process. With too much heat at night the trees are deprived of rest, and this is not favourable to the fruit, cold and drying currents in the daytime are even more injurious, a sudden change sometimes proving fatal to the crop. Continue the night temperature at 60deg to 65deg, also in dull weather in the daytime, but 70deg to 75deg with gleams of sun, ventilating from 65deg. Attend to thinning the fruit betimes. It is not desirable to leave, during the stoning process, more than twice the number of fruits that are to remain for the crop. One fruit to every square of foot of trellis covered with foliage is ample for the large Peaches, and the medium-sized varieties may be left a little closer. Nectarines being smaller than Peaches, are often left much too close, which reduces the size of the fruit proportionately, whereas to secure fine fruits they require thinning similar to Peaches.

Secure all the shoots to the trellis that are required for extension and next year's bearing as they progress, stopping any gross successional shoots at a length of about 15in. If the stopping results in laterals pinch them at the first leaf, and so on as produced. If extension is wanted the uppermost laterals may be trained in. Pinch laterals on extensions to one leaf, and succeeding growths to one joint. If the trees are in good order there will be little necessity for stopping the shoots if they are allowed space for the development of the foliage to solidify the wood as made. Shoots retained to attract the sap to the fruit should be stopped to one leaf, they having previously been pinched in the first growth at the third leaf. Avoid stimulating the trees while stoning, but afford due supplies of water and food of a phosphatic nature combined with potash rather than nitrogenous.

SECOND EARLY FORCED TREES.—Proceed with disbudding, a shoot being left at the base of the present year's bearing wood or last year's young wood, and one on a level with or above the fruits. The first must be trained forward, but the latter should be stopped at the second or third leaf. Upon extensions leave young shoots at 15in or 18in distance, the growths from the extremity being trained as a continuation of the primary branch. Commence tying early, as when the shoots are allowed to grow considerably they cannot be brought down without danger of breaking. Overcrowding must be carefully guarded against, it is fatal to fine, highly-coloured fruits and the formation and perfection of the wood for future crops. Thin the fruits by degrees, leaving those well placed upon the upper side of the trellis in sufficient quantity for a crop, or a little more, until the final thinning before stoning. In no case is it good practice to tax the trees with superfluous fruits after they are the size of marbles. A temperature of 55deg to 60deg at night, 65deg by day, increasing to 70deg to 75deg is suitable.

HOUSES STARTED AT THE BEGINNING OF FEBRUARY.—The trees in these have set their fruits, or nearly so, and recourse must be had to syringing in the morning and afternoon of fine days, but an occasional syringing with damping the house will suffice in dull weather, always having the foliage and young fruit dry before nightfall. Disbudding must be done gradually, commencing with the most forward growths, also thinning the fruits after it is seen which takes the lead in swelling, removing the smallest first, but avoid large reductions of foliage or of fruit at one time. A temperature of 55deg at night, 5deg less on cold mornings, 55deg to 60deg by day, advancing to 65deg or 70deg with gleams of sun, will bring the trees on fast enough ventilat-

ing from 55deg to 60deg, and not allowing an advance above 65deg without full ventilation.

HOUSES STARTED EARLY IN MARCH.—With the flowers expanding syringing the trees must cease, for there is danger, especially in dull weather, of weakening the blossom and converting the pollen into paste. An unusually bright period and a dry atmosphere may occasion the need of an occasional syringing. Damping the floors and borders is generally sufficient, and a safe plan. Admit air freely in mild weather, and fertilise the flowers on fine days. Maintain the night temperature at 45deg to 50deg, 55deg by day artificially, and 65deg from sun heat. Admit a little air constantly, increase the ventilation at 50deg, and give more as the heat rises, having full air on at 65deg, closing at 50deg. Superfluous flowers on the under side of the shoots may be removed by drawing the hand down the growths.

LATE HOUSES.—Where the roof lights have been removed they should be replaced at once, the buds being well advanced in swelling, and promising an abundant crop of fruit. If there be any trace of aphides, apply an insecticide, or fumigate the house before the flowers expand. Nothing conduces more to a good set than removing the flowers on the under side or back of the trellis, and turning on the heat after the anthers show, for a short time in the early part of the day to advance the temperature to 50deg, and permit of ventilation, as if there is a prevalence of dull, cold weather at that time, closing the ventilators for safety prejudices the pollen. Houses that have fixed roof lights must have the borders rendered thoroughly moist.—G. A., St. Albans, Herts.

The Kitchen Garden.

ASPARAGUS BEDS may now receive a top-dressing of rich compost. Wood ashes should enter into the mixture largely. There are few better fertilisers than wood ashes which have been charred in a smother heap, but bleached ash is much poorer in quality. It is not wise to mix salt with the dressing. This may be applied at a later date. After the dressing has been applied the beds should be edged to give them a smart appearance.

GLOBE ARTICHOKE SEEDS may now be sown. Unfortunately, a large percentage of the seedlings are worthless. Therefore it will be necessary to select those which produce the best heads when they bear their first crop, and discard the bad ones.

TURNIPS.—A sowing of these should now be made. Choose a warm border, and select one of the strap-leaved varieties for this early sowing. These turn in quickly, and are therefore not so liable to form hard cores as the Snowball type, which are better for a later sowing.

DWARF OR FRENCH BEANS.—A few dozen 3in pots of these will prove useful for planting out in April where they can be sheltered. At the foot of Peach walls is a suitable place. The canvas used for protecting the trees will also shelter the Beans when planted out, and will forward them several weeks.

EGYPTIAN OR TURNIP-ROOTED BEET.—A small sowing of this may now be made, and will be serviceable for early supplies.

CELERIAC should now be sown in heat. This requires a long season to mature large roots. The soil should be rich and well prepared, or the roots will be of poor quality.

CABBAGES.—A few rows of these should now be planted to keep the supply going. Spring Cabbage will be a poor crop in many cases, and extra attention should be given to this early planting.

CAULIFLOWER SEEDS and other winter and autumn seeds of the Brassica family should now be sown. The autumn varieties of Cauliflowers require a sheltered position. As sharp frost often injures them, the seed should be coated with red lead to keep the birds from destroying the seed as they germinate, which they are very fond of doing.

PARSLEY.—A good breadth of this should be sown. The soil should be deep and rich. The seed should be sown a little more thickly than usual.

HOEING.—As soon as the soil becomes dry enough the Dutch hoe should be used freely on all parts of the garden where possible. Its use will be more necessary than usual owing to the hard condition of the surface soil after the heavy and continuous



Tritoma Sandersi × *May Queen*.

rains. It will very materially assist in bringing the soil into good condition for planting.

LETTUCES.—A good batch of early Cabbage Lettuce should now be planted in a sheltered spot, after being thoroughly hardened. At the foot of a warm south wall is the best place for them. The soil should be rich and light to induce a quick growth. All the Year Round and Tom Thumb are very reliable kinds, being hardy and turning in quickly. There are many newer kinds of great merit, many of which lack hardness, which is essential for this early planting.

PLANT CAULIFLOWERS, which have been wintered in cold frames, should be carefully lifted with a fork, keeping as much of the soil on the roots as possible. They will require protecting on cold and frosty nights. There is nothing better than hand-lights for the purpose. Where, however, these cannot be had, flower pots turned over the plants will answer well, but these must, of course, be removed early on fine mornings. When planted out at this early date extra care will be required, as a check will mean failure.

SECOND EARLY POTATOES.—A good breadth of these should now be planted.—A. T., Cirencester.

The Flower Garden.

GLADIOLI.—Corms of *Gladiolus brenchleyensis*, *gandavensis*, *Lemoinei*, and *Childsi* varieties may be planted in lines or groups in borders. A fairly deep, rich, and well-manured soil should be provided, but the positions must be sunny, and, if possible, sheltered, as rough winds, when the flower spikes are opening, soon destroy their beauty. The corms may be planted 4 in deep and 6 in apart. Place the groups in threes, sixes, or twelves. Lines or rows should not be less than a foot apart. Gladioli look well when in flower against the dark background of a hedge or shrubs.

HALF-HARDY ANNUALS.—Asters, *Ageratums*, *Amaranthus*, Carnations, Stocks, Scabious, *Salpiglossis*, *Zinnias*, and any other half-hardy annuals may now be sown in pans or boxes under glass in a greenhouse sufficiently well heated to cause quick germination. Drain the pans or boxes well, using a few crocks and some rough material for the purpose. A mixture of loam and leaf soil, with some sand added, will form a good compost. Make the soil firm and level, and if at all dry give a watering before sowing. Scatter the seeds thinly, and cover with a light sprinkling of fine soil. Cover the soil with a pane of glass, and lay over a sheet of paper, which withdraw immediately the seed germinates. Afterwards give the seedlings a position near the glass.

ROSES.—It is not yet too late to plant Roses; indeed, this is a favourable time, providing the weather is dry and the soil works well. The plants, however, will not flower abundantly this season as they cannot have time to become well established. Close pruning should follow the planting, and some good growth will result, this being important. Thoroughly broken up ground in beds and borders, enriched with manure and loamy soil, and free from stagnant moisture, is suitable for Roses. In these positions plant bushes, including Hybrid Perpetuals, Tea and Hybrid Teas, China or Monthly Roses. For trellises or pillars the climbing *Polyantha* Roses, *Banksian*, *Evergreen*, and the climbing varieties of Hybrid Perpetuals and Tea Roses are adapted. The Penzance Sweet Briars make good hedges.

SWEET PEAS.—Further sowings should be made. A piece of good ground which has been well cultivated by trenching and manuring is required, or if this has not been done spread a liberal layer of manure over, and dig it in as deeply as possible. Another method may be adopted, this consisting of taking out a trench as for Celery, placing several inches of manure at the bottom, then filling in the soil. Draw a wide drill over this, making the base level, sow the seeds 4 in apart, and cover with fine soil about 2 in. It will be needful to protect the seed and seedlings from birds. Sweet Peas which are being forwarded in pots, should have frame treatment preparatory to being planted out.—E. D. S., Gravesend.

NEW HARDY TRITOMA, MAY QUEEN.—The hybrids and species of *Tritomas*, so valuable as decorative plants in groups as well as cut flowers, usually commence to flower in midsummer and cease when early frosts in October set in. This new hybrid, however, begins to flower at the end of May with the *Irises*, and continues to bloom till late in the autumn. The habit of the plant is good, and the flowers vary in colour from orange to scarlet. Raised from seed, which germinates easily, the plants bloom in the second year. The plant has proved quite hardy, and can remain outdoors during the winter; snow and frosts do them no harm if sheltered somewhat against strong winds. It is offered by Stenger and Rotter, nurserymen and seedsmen, Erfurt, Germany.

THE BEE-KEEPER.

The Stewarton Hive.

I was glad to read "E. E.'s" further remarks regarding these hives, and he states that the extra body boxes should be placed under the brood box, and thus circulating the necessary heat. This is where I seemed to err, as I placed the additional body box immediately on the top of the brood box, and on that again I put the super. By this arrangement I had kept the bees from going upwards, as I now see it was rather cold for the bees to start right away in a new body box. When I am placing the extra body box under the present brood box, I suppose only two slides on either side will be sufficient to allow the bees to get up and down from their present abode, and also I shall require to close the present entrance of the brood box, thus enabling the bees to exit from the additional box. "E. E.," however, states that the young queen is the best to keep. How can he ever get a young queen with these hives if he puts on additional boxes each year to prevent swarming?—HEXAGONAL.

With reference to "E. E.'s" remarks on page 152 regarding the cost of Stewarton hives, I cannot see why catalogue prices should be taken, especially as one cannot find two of them alike. His comparison with the bar-frame parts is not much of a guide for the Stewarton. I know men (enthusiastic bee men) in Ayrshire who simply take a delight in the management of those hives, and it is not an uncommon sight for a stranger to enter into any of their houses on a stormy winter evening and to observe at first sight the industrious man with his hammer and plane putting the parts of the hive together, and thus preparing for the summer. These are the men who deserve success, and much credit is due to them when they can show you 60 lb or 70 lb of honey, all obtained at so little cost, and principally through their watchfulness. To those commencing bee-keeping I would venture to say that they should start at the foot of the ladder and make their own hives, and they could not desire to work with a better and more easily made and managed hive than the Stewarton.

With reference to obtaining boxes from grocers, "E. E." must be placed in a curious position. The next time he is in Scotland, if he enters into one of our large shops, I am sure he will get as much as he can carry back with him free. If "E. E." has ever the occasion to go to any good nurserymen for cuttings in the autumn he will, I am sure, receive them in nice little boxes just the size for supers. Last autumn I had the pleasure of receiving two or three good ones in this way.

I do not agree with the trough feeders as mentioned. The feeder above is the best of all, as there is not much chance of stray bees getting there. I fancy from the trough appearance that stray bees can enter hive, partake of feeding, and go out again without being noticed by the bees. Very few bees remain at the footboard as compared to those at the top of hive. I have used the zinc excluder, but it was not till late in the summer that the bees ventured through. Calico will answer should it be used in the right manner. On the whole, I do not believe in any queen excluder, hence my reason for using this hive.—STEWARTON.

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible, with one inch space at both top and bottom as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

Scottish v. English Gardeners.

I beg of you to allow me a little space in this corner to reply to my critics. I hope the letter by "Cosmopolitan," p. 152, has been read by "A. J. L.," "Northern Gardener," "English Foreman in Ireland," and "Englishman, Berks." It is a most edifying letter to old and young gardeners who have taken part in this discussion, and I hope a lesson may be taken therefrom how to write somewhat more sensible answers to any question. I must needs say a word to my critics individually. The "English Foreman in Ireland" interests and amuses me. I think those men who were expelled for drunken habits must have been cheap men, and of the lowest order, picked up in the now proverbial "Salt Market" in Glasgow. My next critic is "Northern Gardener," on p. 109, who thinks I had better be learning my business than asking such senseless questions. Why has he, in the name of common-sense, stooped to take notice and answer senseless questions in the "Young Gardeners' Domain"? It is good to have letters from experienced men to help us to arrive at proper conclusions on subjects under discussion, but I don't

quite like being told to "shut up"—in our own little corner if I may so call it. Evidently "Northern Gardener" has become confused in the discussions. I never did at any time pass remarks about "the drunkenness which prevails in bothies south of the Border." What I did say was that "nine-tenths of the young men in England spend too much time in public-houses and pleasure seeking." Drink and drunkenness was not in my thoughts when I penned my article on "Principles of Propriety." The dominating word is *time*. I congratulate "Northern Gardener" on his attaining to good age, and I hope he will be spared to read his *Journal* for many years to come. But I am afraid that his statements that he "has seen more drunkenness in Scottish towns and villages than in similar places in England" must, and will, be taken with great reserve.

On page 128 I have another critic disagreeing with the second version of the meaning of teetotallers, i.e., "Terrible Tipplers." "Englishman, Berks," says a friend of his told him that Scottish teetotallers see no harm in drinking whisky. What a revelation! Is it true? His friend also told him that Scotsmen are cheaper. What a contemptible statement this must appear to the experienced! "Englishman's" letter is a good pen picture, in a way, of himself, and I think I will know him if I should meet him.

I will now give an explanation of my statement that "nine-tenths of the young men in England spend too much time in public-houses and pleasure seeking." In any town or village in England we go to, we shall find young men, and old ones, too, sometimes, flocking to their favourite "pub," and into the "parlour," which is very comfortable. A game of dominoes or cards is indulged in, and the losing side pays for the drinks. I am not a "T.T.," and I do not see any harm in that occasionally, but the same thing occurs almost nightly. Taking the "T.T.'s" of any of the two versions, they prefer the Working Men's Club or Institute, and in them it must be confessed that there is very little reading done, with the exception of the dailies for cricket, football, &c., &c. Games are preferred to serious study. I say nothing against games. I am fond of games myself; but fonder still of satiating my thirst for knowledge. Night after night, week after week, the same thing goes on, nine-tenths of the young men in England spending too much time in public-houses and in pleasure seeking. I might give my opinion that if English gardeners, young and old, would but give their brains something more to do in the way of study there is no reason why they would not in time become as good as their northern brethren, who have been proved over and over again to be better managers, more practical, and more methodical in their work. There are exceptions, but exceptions prove the rule. In conclusion, allow me to say that I hope the ardent readers of the *Journal* will try to appreciate the efforts of a friendly "Scot" to induce young gardeners to fall in love with their work, and search for hidden treasures therein. The success of the *Journal* and my kind critics is the best wishes of—Scot, Berks.

The Scottish v. English gardener is an old theme, and as far as I am concerned, I am not impressed by Scottish gardeners. True, I only know two personally, one being a coarse, heavy drinking, and very objectionable man, with an inordinately high opinion of his prowess as a gardener. The other is a pleasant man, but possesses the gabbling habit to a degree. Boastfulness appears to be general among Scottish gardeners, and the second man referred to fairly reeks with it, yet, as a practical, all-round gardener, I would not place him high on the list. A certain journal that devotes itself much to the interests of northern gardeners is ever the scene of warfare; and, candidly, I must say that never have I seen such meanness, ungentlemanliness, and bitter spitefulness displayed as is frequently displayed in the letters from the Scots. Anyone differing from their views has been reviled as much as journalistic laws allow, and having some little acquaintance with such matters, I have no doubt that the letters are considerably scored with blue pencil before they are fit for publication. It is apparent that many, if not all, Scots gardeners are animated with an extraordinary amount of self-conceit and bumptiousness, coupled with a ill-displayed contempt for others of the ilk from south of the Tweed.—GROWER.

Trade Catalogues Received.

Barr and Sons, King Street, Covent Garden, W.C.—"Spring, 1904."
Cooper, Taber, and Co., Ltd., 90 and 92, Southwark Street, London, S.E.—*Wholesale Catalogue of Farm Seeds*.
Alexis Dallièrè, Chaussée de Bruxelles.—"Spring, 1904."
Dickson and Robinson, Manchester.—*Dahlias*.
Dicksons, Chester.—*Farm Seeds*.
Kent and Brydon, Darlington.—*Farm Seeds*.
Amos Perry, Hardy Plant Farm, Winchmore Hill, London, N.—*Parts 1 and 2 General Catalogue of Border and Rock Plants*.
Ransomes, Sims, and Jefferies, Ltd., Orwell Works, Ipswich.—*Lawn Mowers*.
Thomas S. Ware (1902), Ltd., Feltham, Middlesex.—*Hardy Perennials*, &c.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this *Journal*, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

* * TO OUR READERS.—Both editor and publisher would accept it as a personal service rendered, if those of our readers or their friends who have at any time been unable to obtain the *Journal* from the ordinary sources, would kindly communicate with us. In the case of a special number, such as last week, it is advisable to notify agents beforehand where extra copies are desired.

CONTRIBUTIONS RECEIVED.—(G. C., Byfleet).—With thanks, and shall print it shortly. (B. E. N., Feltham).—We shall return MS.; meanwhile accept our sincere thanks.

A QUERY.—"J. D. A." says: "I would be greatly obliged if you or any of your readers could inform me of the best method to fertilise the Anona or Custard-apple."

BOOKS (M. Moonisawmy and Sons).—You would find stove plants and ferns treated upon in Baines's "Greenhouse and Stove Plants," the price being 16s., we think, from John Murray, publisher, London. "Trees and Shrubs" (Geo. Newnes, Ltd.) is a good, up-to-date book.

MOLLUSC FOR IDENTIFICATION (W. R.).—It is a member of the Mollusca, and one of the Gasteropoda or "belly-footed," the long, flat muscular foot running along the under-side of the animal. It is a very lean form of the little carnivorous Testacella haliotoides, and in a young state the shell, small, ear-shaped and situated at the extremity of the body, which you probably have mistaken for the head, and refer to it as the "bud" not being developed, though the back has the double furrow characteristic of the Testacella. It feeds chiefly upon earthworms, and is usually found in the loose soil of gardens, though not uncommonly in the lower part of the soil of plants in pots. It is not in any respect destructive of plants.

CATERPILLAR TO NAME (J. M.).—The caterpillar is that of the Vine Tortrix or moth (Tortrix vitisana), which is closely related to the Grape Moth (Tortrix angustiorana). The former eats the blossom buds or the flowers out of the shoots, and in this way does a considerable amount of mischief, but is only occasionally met with in this country. The caterpillar of the Grape Moth, on the other hand, preys on the ripening or ripe Grapes, and sometimes does considerable damage by not only eating the berries, but by setting up decay in others of the bunch. The only remedy is to capture and destroy the caterpillars.

FAHRENHEIT AND CENTIGRADE SYSTEMS OF RECORDING TEMPERATURES (D.).—In Fahrenheit's thermometer the freezing point is at 32deg, and the boiling point at 212deg, zero being at 0deg, or 32deg below freezing point. The Centigrade thermometer has zero or freezing point at 0deg, and the boiling point at 100deg. Fahrenheit's thermometer is used chiefly in Britain, Holland, and North America, and the temperature is recorded at the figures or degrees above or below zero. When above simply at the particular heat, say, 50deg Fahr., or when below zero with a short line prefixed, say 1deg, or 33deg below freezing point. Centigrade thermometers are used everywhere by men of science, and the temperature above zero or freezing point in this instrument is simply recorded as the particular temperature at the time of observation, say 50deg Cen.; if below zero, say 1deg, then it is recorded as —1deg Cen. This —1deg Cen. corresponds to nearly 30deg Fahr., 50deg Cen. to 122deg Fahr. The recording of the temperature by different scales is somewhat confusing, especially to gardeners, but the degrees of temperature of a Centigrade thermometer are readily reduced to degrees of Fahrenheit's scale and conversely by the following rules:—1. Multiply the Centigrade degrees by 9 and divide the product by 5; then add 32 to the quotient, and the sum is the degrees of temperature on Fahrenheit's scale. 2. From the number of degrees on Fahrenheit's scale subtract 32, multiply the remainder by 5, and the product being divided by 9 will give the temperature required in Centigrade degrees.

NAME OF AZALEA (G. F.).—The varietal name is a Belgian or French gentleman's name, and cannot be altered into English. If your name were given to a plant, no foreigner could or would have a right to alter it.

TOMATO SEEDLINGS DAMPING OFF (H. A.).—The seedlings are affected by the "Damping-off" fungus (*Pythium debaryanum*, Hesse). This disease generally occurs where the soil is kept wet and the light is dull. Try to keep the soil drier; have good drainage; and allow more light and air upon or among the plants.

FRENCH HORTICULTURAL NEWSPAPERS (D. C.).—Those best known to us are "Le Jardin," 84, Rue de Grenelle, Paris (appears on the 5th and the 20th of each month, 14 fr. per year); and "Le Moniteur d'Horticulture," 14, Rue de Sèvres, Paris (12 fr.). Both furnish coloured plates occasionally, and always contain useful woodcuts.

RICHARDIA OR CALLA LEAVES BLOTCHED (W. B.).—The leaves are affected by a leaf-blotch, which closely resembles that of the Iris leaf-blotch (*Heterosporium gracile*) in the manner of its work, but we failed to discover the mould or "fruits" of the fungus, though we have noticed it in other cases. The upper portion or edges of the leaves turn brown, and decay or rot, and the affected leaves are soon seriously disfigured, and not infrequently destroyed. Later on, large dark spots appear and become black, rounded or elliptical, and on these the velvety mould is present. In many cases, however, the leaf simply dries up from the edges, or pale spots are formed on the leaf with a narrow brown margin, and appear simply bleached or dead tissue, as if scorched. The disease is rather common, especially when the plants are kept under close and moist conditions, and the only repressive measure we have found of any use is to cut off the worst affected leaves and burn them, then afford the plants all the light possible, ventilate freely on all favourable occasions, yet not subjecting to cold currents of air, and keep water from the leaves, a genial temperature of 50deg being accorded the plants, with 10deg to 15deg or more rise from sun heat.

NAMES OF PLANTS.—*Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number.* (C. H. H.).—1, *Dendrobium Brymerianum*, a very fine flower and carefully packed; the other two labels became loose; the pink flower is *D. primulinum*; the pale yellow one is *D. aureum*. (Stone-chat).—1, *Odontoglossum triumphans*; 2, *Masdevallia tovarensis*; 3, *Odontoglossum Andersonianum*. (T. F.).—1, *Alnus glutinosus*; 2, *Salix Caprea*; 3, *Phyllyrea latifolia*; 4, *Erica arborea*. (N. F.).—1, *Muscari botryoides alba*; 2, *Scilla bifolia*. (N.).—*Hibbertia dentata*.

Covent Garden Market.—March 16th.

Average Wholesale Prices.—Fruit.

	s. d.	s. d.		s. d.	s. d.
American Limes, 400-500 in ease	7	0 to 9	Grapes, in barrel	12	0 to 18
Apples, home cooks, bush.	4	0 6	" Muscats, A., lb.	6	0 8
" American, brl.	12	0 15	" " B., lb.	2	0 3
" Californian, case	7	6 14	" Canon Hall, A., lb.	2	0 8
Bananas, bunch	6	0 14	" Gros Colman, A., lb.	1	6 3
Chestnuts, bag	19	0 0	Lemons, per case	8	6 10
Cobnuts, per lb.	0	7½ 0	Lychees, box	1	2 0
Cranberries, per case	10	6 13	Oranges, per case	8	0 35
Figs, per box	0	10 1	Pears, per case	12	6 14
Grapes, Alicante, lb.	1	6 2	" stewing, ½-sieve	9	0 11
			Pines, each	2	0 5
			Strawberries, lb.	10	0 15

Average Wholesale Prices.—Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Jerusalem, sieve	1	0 to 1 3	Onions, per case	6	0 to 6 6
Asparagus, Sprue, bundle	0	10 0	" per bag	4	0 6
" Paris Green	4	6 6	" picklers, sieve	3	0 5
" English, bun.	5	0 7	" English, cwt.	7	6 0
Beans, dwarf, per lb.	2	6 3	Parsley, doz. bnchs.	1	6 2
" Madeira, basket	1	6 2	" sieve	0	6 0
Beetroots, per bushel	2	6 3	Parsnips, per bag	2	0 2
Brussels Sprouts, sieve	1	0 1	Potatoes, per ton	90	0 14
Cabbages, tally	2	0 5	" New Teneriffe, per cwt.	12	0 14
Carrots, doz. bun.	2	0 3	Radishes, doz. bun.	0	9 1
" per bag	2	6 4	Rhubarb, per doz.	0	9 1
Cauliflowers, doz.	1	6 3	Salad, small, pun., doz.	0	6 1
Celery, per doz. bun.	12	0 24	Savoys, tally	3	0 4
Cress, per doz. pun.	0	9 1	Seakale, per doz.	10	0 14
Cucumbers, doz.	7	0 10	Shallots, per lb.	0	1½ 0
Endive, per doz.	1	6 0	Spinach, per bush.	3	0 3
Garlic, per lb.	0	2 0	Tomatoes, Canary		
Horseradish, foreign, per bun.	1	3 1	" Deep, lb.	3	0 4
Leeks, per doz. bun.	1	6 0	Turnips, doz. bun.	1	6 2
Lettuces, Cabbage, doz.	1	0 1	" per bag	2	0 2
Mushrooms, house, lb.	1	0 1	Watercress, per dozen bunches	0	4 0

Average Wholesale Prices.—Plants in Pots

Most of the undermentioned plants are sold in 48 and 32-sized pots

	s.	d.	s.	d.		s.	d.	s.	d.
Acacia Drummondii, dz	12	0	50	0	Ferns in var., per. doz.	4	0	30	0
Adiantums, per doz. ...	4	0	8	0	Ficus elastica, doz. ...	9	0	24	0
Aralias, per doz. ...	4	0	8	0	Genistas, doz. ...	6	0	10	0
Arbor Vitæ, per doz. ...	9	0	18	0	Hyacinths, Roman (48-				
Aspidistras, per doz. ...	18	0	36	0	pots), doz. ...	8	0	9	0
Aucubas, per doz. ...	4	0	8	0	„ Dutch ...	8	0	12	0
Azaleas, each... ..	1	6	3	6	Lycopodiums, per doz.	3	0	4	0
Begonia, per doz....	8	0	18	0	Lily of the Valley, doz.	9	0	24	0
„ Gloire de Lor-					Marguerites, white „	4	0	8	0
rairie, per doz.	8	0	24	0	Orange Trees, each ...	3	6	10	6
Callas, per doz. ...	10	0	12	0	Palms, var., each ...	3	0	20	0
Chrysanthemum, doz.	6	0	12	0	Poinsettias, per doz....	8	0	15	0
Cinerarias, doz. ...	6	0	24	0	Primulas, per doz. ...	4	0	6	0
Coleuses, per doz. ...	4	0	5	0	Pteristremula, per doz.	4	0	8	0
Crotons, per. doz. ...	12	0	24	0	„ Wimsetti „	4	0	8	0
Cyclamens, per doz. ...	9	0	18	0	„ major „	4	0	6	0
Cyperus, per doz....	3	0	4	0	Solanums „	4	0	6	0
Daffodils, per doz. ...	6	0	8	0	Spiræas, doz. ...	6	0	9	0
Dracænas, var., doz. ...	12	0	48	0	Tulips, red, doz. roots .	1	0	0	0
Erieas, per doz. ...	6	0	12	0	„ yellow, doz. roots.	1	6	0	0
Euonymus, vars., doz.	4	0	6	0					

Average Wholesale Prices.—Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Anemones, doz. bun. ...	1 6	to 2 6	Mignonette, per doz. ...	3 0	to 4 0
Azaleas, per bun....	1 0	2 0	Nareissus, doz. bun. ...	1 0	2 0
Bouvardias, per bun. ...	0 4	0 6	„ Soleil d'Or, per doz.	3 0	4 0
Callas, per dozen. ...	3 0	5 0	„ Pheasant's Eye „	2 0	4 0
Camellias, box ...	1 6	2 6	Oreheids, various, doz.	3 0	12 0
Carnations, per bun. ...	1 0	3 0	„ Odontoglossums,,	2 6	3 0
Daffodils, bunch ...	2 6	6 0	„ Cypripedium in-		
Eucharis, per. doz. ...	3 0	4 0	signe, per doz.	1 6	3 6
Ferns—Asparagus, bun.	1 0	2 6	Pelargoniums, zonal,		
French, doz. bunches	0 4	0 6	doz. bun....	4 0	6 0
Maidenhair, doz. bun.	4 0	6 0	Poinsettias, bun....	1 6	0 0
Freesia, per doz. ...	1 6	2 0	Roman Hyacinths, per		
Gardenias, box of 18-24			bunch ...	0 6	1 0
blooms ...	4 0	5 0	Roses, Mermet, per doz.	3 0	6 0
Lilae (Freneh), bun. ...	1 6	3 0	„ Various, per bun.	0 6	1 6
Lilium longiflorum,			„ White „	1 6	2 0
doz. blooms	4 0	7 0	„ Pink „	1 0	2 0
„ lanceifolium „	1 6	3 0	Smilax, per doz. trails	1 0	1 6
„ auratum „	2 6	4 0	Snowdrops, doz. ...	1 0	1 0
Lily of the Valley, per			Stephanotis, per doz....	1 6	3 6
doz. bun. ...	6 0	15 0	Tuberose, strong, bun.	1 0	1 6
Marguerites, yellow,			doz.	0 6	0 9
per doz. bun. ...	1 0	2 0	Tulips, per bunch ...	0 6	0 9
Mimosa (Acacia), per			Violets, per doz. bun...	1 6	1 9
bun. ...	0 9	1 0	„ Parma „	1 6	2 6



Agriculture in Denmark.

The Department of Agriculture for Ireland sent last year a deputation to Denmark, to inquire fully into the methods practised by that hardworking people, to report thereon, and that report has been printed and circulated in the Sister Isle. From it we gain much information conveyed in a concise and pleasing manner, and we should say that, while as English farmers we may learn and profit much, yet the Danish systems are perhaps more fully suited to the needs of a country like Ireland than to our own, and this principally for the reason that the smaller holdings are to be found more in Ireland than here, where often a parish will be divided between four or five large farmers, who would not, and could not, be induced to join any form of co-operative society; in fact, working on so large a scale, they are practically "self-contained." There are certain districts in England where may be found a large class of small farmers or peasant proprietors, and to them co-operation on the Danish lines would mean health and salvation. Within the last thirty years the farming conditions of Denmark have undergone an entire change, and it is marvellous how the people have so quickly adapted themselves to the new conditions. They

are an industrious race, a saving race, and a temperate race.

As regards the proprietorship of the land, we find that ninety per cent. of the peasant occupiers are proprietors. The "estates" vary very much in size, thus: Estates from a quarter of an acre to six acres number 92,656; total acreage, 155,766; making an average of 1.6 statute acres each. From six acres to twenty-four and a half, 66,491 estates, having on the average 12.6 acres each. Over twenty-four and a half acres, 73,889 estates, averaging 74.7 acres each. All these little farms or properties have had their birth since 1851, when certain companies, authorised by Government, took mortgages up to 50 per cent., and the repayment of these mortgages extended from periods of fifty to 100 years. This chance of borrowing money on easy terms was a great inducement to the peasant to become a proprietor. We cannot find out one thing we should like to know, viz., how it was that land in suitable parcels came into the market, unless it was that, owing to severe losses, the large proprietors were so sadly hit prior to 1851 that they were thankful to subdivide their estates and live on the proceeds.

The difficulty with us is to find the land, except such as is totally unsuited, for even the most painstaking and plodding of workers; unsuitable either from its inherent badness (heartbreaking clay or blow-away sand), and as to the latter it will bring in far better returns if turned into game coverts, for there will always be here a strong demand for, and consequently a good price made of, suitable partridge grounds. The love of sport is so inherent that we will have it at whatever cost. As for the clays, we doubt if any such as now form our derelict lands can be met with in any country outside our sea-girt borders.

As far as we can gather the Danish peasant is bent on self-improvement. He feels and knows that education (of the right sort) is the lever by which he can move mountains, and therefore he makes it his business to get as much of it as he can, not only the ordinary book learning, which appears to be of a very good and liberal type, but also he embraces the opportunities offered him of attending the agricultural courses which are found in connection with the higher grade schools. We say "him," but here we err, for the classes are open to girls as well as boys. Having got education, the next step is to apply it to daily life, and this is done with great success. The people see for themselves the necessity of unity. It is the old fable of the bundle of sticks over again. All these small holders would be powerless if they acted alone; therefore, like wise men and women, they combine, finding in that union strength. Agriculture is the leading industry, and into that they put all their energies. Finding that their dairy produce commanded a good market, they have made dairy work one of their chief aims. They have (and this quickly) got together such herds or breeds of cows most suited to the various districts, and also most capable of giving the best result in the milk pail. In fact, every separate detail has been reduced to system, and that system the best that human ingenuity can devise. Every atom of land is brought under the closest cultivation, for each individual farmer has not more than he can personally supervise. We have a rooted idea here that for dairy work we must have good old grass, and very nice it is; but probably a more expensive system cannot be found. In Denmark permanent pasture is practically unknown, for the simple reason that by the cultivation of grass and clover crops the forage is most materially increased; that is, far more weight of food stuff is produced per acre. When the milk, too, is constantly tested at the several creameries, it is necessary that steps be taken, not only to produce quantity, but quality likewise. It is necessary, too, that the said milk should be clean and free from any other than milk flavour, and for the guidance of the farmer a list of rules is drawn up. We do not know whether they are the same for all the 1,200 creameries, but doubtless all are much alike. All milk by law has to be pasteurised before being sold; this must materially lessen all risk of disease to the consumer.

There is one remark at the end of the rules which strikes us as being very good. "Regard this excellent work as one of honour," i.e., this work of milking and managing the cow. We are afraid here it is often looked upon as a work of necessity, but by no means pleasurable

work, and as such to be got through with the greatest expediency possible. It is a marvellous sum of money to be realised in one year from the sale of butter, £8,175,777, and this from a small country like Denmark. Cheese-making is practically in its infancy, but such a skilful butter-making nation will not fail at cheese-making if by it they find an honest penny may be turned. The bacon industry, too, is quite of modern times. Owing to the principle of co-operation as applied to the rearing and feeding of pigs, and the erection and equipment of curing factories, the growth of this trade has been something enormous during the last fifteen years. There is no doubt that considerable help has been afforded to these factories by the public spirit in which financing has been done, both by banking institutions and the co-operation of the Municipal bodies, and the associations of merchants and traders. But money will not do everything, and it is to the praise of the farmer that he has so quickly fallen into line, i.e., learnt which is the best style of pig, the one most appreciated by the consumer, and straightway bred that variety for all he was worth. The value of bacon exported in 1901 was £3,448,444.

In Copenhagen we find the largest institution for the export of eggs, and there are eight similar centres scattered through the country, and to them are affiliated 400 societies, all engaged in the work of collecting and packing eggs. These eggs are bought *by weight*, a system much to be desired in our markets. Every care is taken to exclude doubtful eggs, and any member of the associations sending stale eggs twice is promptly expelled. The money value of exported eggs in 1901 reached the respectable sum of £1,009,555.

There is another little point we failed to mention when on the subject of education. The children of small farmers and labourers are not expected to go to school every day; it is a case of half book-learning and half practical education on the land. But they do not consider their education complete when the age of fourteen is attained. They are eager for learning, and continue to attend classes up to the age of twenty years or more. We have much to learn from these industrious, clever people, but we think it is hopeless to expect a like condition of things to exist here until this land is all cut up into small holdings, and Government treats the agricultural industry as one worthy of protection and encouragement.

Work on the Home Farm.

We seem to be no nearer spring sowing than we were a month ago. A couple of days since we were visited by a regular deluge, and travelling yesterday to a sale ten miles away, we could see water standing in pools in nearly every field. No land work seemed possible, but in one field two pairs of horses were at work setting out Potato ridges. We thought they would have been better in the stable. We saw a farmer from a lowlying district who said that his horses had not been on the land for two months.

We have not much winter wheat sown about here, and hardly any has been sown on lea. It all looks badly, but particularly the lea wheat, which was sown too late, came up badly, and is now getting less every day instead of growing. It wants a good rolling, but that is out of the question at present. Potato land wheat is better, but not very promising. It will be the smallest wheat crop on record for this district. Seed barley of good quality is not very plentiful, and nice samples sell well. A friend bought one quarter of the "Maltster" variety last spring, sowed it on 2½ acres, and has seventeen quarters from it. Price 42s., which must be paying him well.

We are glad to write that the loss of ewes which we mentioned last week is a solitary case. The majority of farmers are enjoying very good fortune, and there is a heavy fall of lambs. Some of the early starters have nearly got their lambing season over, and hold good records. There is plenty of keep in the young seed pastures where rye grass has been liberally sown. Now that the grain crops are secondary considerations, the welfare of the flock must be looked to, and there is nothing like Italian rye grass for ewes and lambs in early spring.

We have a mare down with lock-jaw, rather a mysterious case, for she has apparently had no wound. Severe cold may have been the cause, but more probably it has arisen from a trivial scratch which has escaped notice. The vet. has hopes of a cure, and we have not given her up. The loss of a good horse in such a manner is serious in these bad times. Good ones at the sales make £50 and upwards, and farmers have no £50 notes to spare. The egg market keeps firm, for hens are decidedly backward in laying this spring, no doubt owing to the bad weather. We believe that continuous wet has a worse effect than severe but dry cold.

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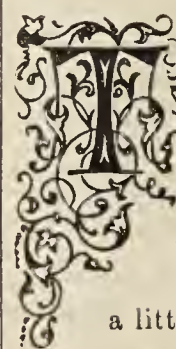
ALTRINGHAM & MANCHESTER



Journal of Horticulture.

THURSDAY, MARCH 24, 1904.

The Turning Tide.



THE tide of seasons has turned, and the time of sowing and planting, whether it turns out to be good, bad, or indifferent, looms before us. Every day now we notice that the daylight lasts a little longer, and the sun is a little brighter and warmer than it was a week ago. There is music in the air,

too, and early in the morning, throughout the day, and as long as the light lasts, feathered songsters are united in one continued chorus, which tells of the turning tide, and heralds the spring. In the garden there are further signs in the green tips of the growth of bulbous plants appearing through the ground, and the pearly white Snowdrops are now unfurled. These plants are not to be cajoled into doing things out of season, and they seek no cheap notoriety in the way of short paragraphs in the daily papers like the Primrose, which has been giving stray blossoms all through the winter, presumably for the purpose of testifying to the mildness of the season. The Snowdrop does not trouble itself about the weather. It knows its time and keeps it, and when February ushers in, climatic conditions have to be unfavourable indeed if the Galanthus does not make its appearance.

All through this wet and dismal winter there has been one united longing for frost to destroy the vermin and to purify the soddened ground, but, except for a few brief spells, it has held aloof, and Nature seems to be taking advantage of the fact by getting ahead. We would rather she kept back a little, because there is time enough yet for sudden checks before March is out and April bursts upon us. The flowers of the winter and the very early spring have always a charm for us, and recently I saw an old country dame rummaging about amongst her clumps of Christmas Roses. I thought at

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first that she was in search of blossoms for the adornment of her humble dwelling; but she soon corrected me on that score, and informed me that she had had a grand lot of flowers through the winter, and had sold them to a local florist for ninepence a dozen. Business again: it is the spirit that predominates; and considering the accommodating nature of the Christmas Rose, and the demand for white flowers in the winter, it is a wonder that more people do not resolve to grow this old-time plant.

Every day now brings more work for the gardener, and there is no need to look far to find a task. Our troubles have begun in the way of foes, and we must be on the defensive, for only yesterday I observed a number of Currant buds on the ground underneath the bushes, and a perky sparrow sitting on the fence close by, only waiting for me to take my departure so that he might continue his work of depredation. I had seen enough, however, and have adopted a remedy that did good service in my grandfather's day, and now will be hard to beat—namely, mixing up some soot and lime and dusting it forcibly over the Currant and Gooseberry bushes.

The sparrow does not enjoy the buds after that, and if he pops over the fence and centres his attention on the bushes belonging to your neighbour, it is no concern of yours if he does not adopt the same, or another remedy, for self-preservation is Nature's first law. He is a persistent little rascal is our sparrow, and I expect we shall hear the usual complaints about his mischievous habit of pecking the yellow Crocuses all to pieces. Unfortunately no one has ever been able to communicate intelligibly with the sparrow as yet, or we might learn why he always confines his destructive attentions to the yellow Crocuses, and leaves the white and purple flowers alone.

Anxious as we are to be pushing on with seasonable work, there is often wisdom in waiting, and I have nothing in sympathy with the principles of an old gardening hand who boasts that he has sown his Onions on the same day for thirty years, except on one or two occasions when there was snow on the ground. He is loud enough in his boast, and he does it in something the same spirit of the man in "Pickwick" who ate so many crumpets, and then blew his brains out for the sake of his principle; but he does not say how many total failures he has had through performing the operation when the ground was in a wet and almost unworkable condition.

There must be no hard and fast rules about sowing and planting operations, and though the garden calendar tells you to perform certain operations at stated times, it is better to delay the work a week, a fortnight, or even longer, than to get on to the ground when it is in an unfit state for working. To make this mistake means to suffer all the summer, for not only is there a chance of the crop failing, but the soil never works kindly afterwards.

The turning of the tide reminds one of another item. At the present moment there are scores of men engaged in the wearying task of waiting for situations. Many of them are engaged in gardens, young, energetic fellows, foremen and others, and they are waiting for the necessary opening to make them head gardeners. Some of them were waiting this time last year, and if the deferred hope sickens them one cannot wonder. Still, the hope is cherished again at this season, for spring is looked upon as a time when it is said there are sure to be openings. There may be something in this, and I hope all the waiting ones will get their desires; but I doubt it, for the ugly fact remains that we are training too many gardeners.

There are not openings for all the candidates in the market, and so long as the present system prevails of establishing bothies and filling them with youths who do the work that could readily be performed by labourers, the glut of would-be head gardeners will always exist, because the youths grow into men, and if they have any grit at all they naturally aspire to a headship in time. The men are not the only waiters either, because the words "married when suited," which appears in so many advertisements, means that the head place is also desired as an opportunity of entering the holy state of matrimony, and it is rather hard on the gardener that he is not allowed to take unto himself a wife till he gets a head place; and what is more, he never earns enough to keep one, so perhaps, in the circumstances, the prohibition is a merciful one.

At the same time, it is no wonder that the foreman of thirty years of age and upwards grows anxious, as the best years of his life slip away and the head place he wants so

badly, and has waited for so long, seems so slow in coming. If there are any such amongst my readers I offer them the wish that the spring of 1904 will see the turning of the tide which brings success to them.—H.

The Varied Action of Tree Roots.

To the observant mind there is much interesting study to be derived from the differing natures of tree roots. Those whose duty is to remove and transplant trees are in the better position to note these interesting customs of Nature. To very many, probably, the Vine affords the most puzzling problems associated with root life. Years ago, I remember, there was much controversy on the functions of roots and of sap movement. One writer in particular had made himself so familiar with the root life of Vines as to be able to state almost to a day when new root fibres began to issue. Not many, probably, have gone the length of a daily search and comparison qualifying the authority of such statements, but in this particular instance I have absolute faith in the truth of the statement quoted. The author was, and is still, one of the most skilled of British Grape-growers, and not only produced magnificent fruits, but the minutest detail of Vine-lore appeared to him as necessary and as familiar as the English alphabet.

Now, to many a gardener (and some may be growing old in the craft), but mostly among the minors, the problem would be a difficult one to determine to a day, or it may be said a week, when the Vine awoke from her slumbers in the matter of root life. Some are inclined to think that with the bursting of the bud on the gnarled spurs, or the yearling rod, that the root growth becomes spontaneously active. It is nothing of the kind. I have at the present time some young Vines occupying small pots—Vines of last year's growth from eyes which have shoots nearly 12in in length, yet the ball of roots is yet to outward appearance still slumbering, for no sign of life is yet visible to the naked eye. In the course of transferring Vines from one structure to another, occasion was lately given for examining the actual state of root compared with leaf growth, and, incredible though it would be to some, but few newly-formed fibres were present, though some of the laterals had been stopped and the primary leaves almost developed. It would, no doubt, be possible to accentuate root growth, making it more equal with that of lateral by the employment of bottom heat. This, however, is no device of Nature's.

The Vine would seem to be most peculiarly adaptive to the demands of circumstances. Records have been given where in separate structures one Vine can be made to produce three separate successions of leaf and fruit. I have under observation at the present time an instance where a rod from one division passes into the adjoining one. The latter's lateral growths have advanced to their limit some days since, while the root portion in the cooler house is only now just showing signs of activity. Such instances clearly illustrate how adaptive the Vine is, and how much influence heat and moisture have on individual rods, independent altogether of the roots.

In most deciduous trees there is more or less activity found in the fibrous roots in the autumn, at the time of leaf-fall and later. At the same time, it will be found that new bark formation is also in progress then. One has only to compare a bark wound in spring with that of the autumn to discover the result. In the spring the sap would be unstayed in its waste; in the autumn such a phenomenon could not happen, for its purpose and state is so changed that the sap is no longer of water-like transparency, nor a visible liquid. A new course of bark formation, the perfecting of the tree's buds, and an autumn root-growth afford the transformation of all available sap in its latest effort and circulation. While deciduous trees remain so long dormant at the root, evergreen kinds show a striking contrast in activity, which seems continuous almost throughout the year. In the evergreen tree the stored-up sap so familiar with the Vine and other deciduous species has not the same office; its function is not identical, nor the demands equal; yet active growth only occurs at the same or similar periods. It is scarcely necessary to recount the fact that all trees have not the same rule nor custom; and thus, while some kinds may be found more or less active at the roots at all seasons, others have restful periods. The Holly may be cited as a case where a similar course is observed as in deciduous trees, but it must be remembered that these are partly deciduous, shedding their older leaves in spring-time, as also do the so-called Evergreen Oaks. April is recognised as the best month for Holly-planting, because then new roots issue and quickly take advantage of their change of site. As before remarked, the opportunities for observing the habit of roots are given those who a time is spent in tree-planting, but lessons may often be learnt from the work of others when occasion permits.—W. S.



Well-flowered Cœlogynes.

At The Orchard, Hamilton, N.B., the residence of W. Alston Dykes, Esq., the display of plants of this beautiful orchid is very fine. I referred in these columns two years ago to a similar show of these large, well-flowered plants, but the display of this year has by a long way exceeded any previous record. The variety is *C. cristata maxima*. Mr. MacMillan, the gardener, exhibited one of the plants at the latest meeting of the gardeners' association here. It was covered with over 400 blooms, and in the highest state of health and robustness of foliage (see illustration). At my request Mr. MacMillan very kindly consented to get it photographed specially for the *Journal*, whose readers, I have no doubt, will be much interested in such a prodigy. The huge specimen was justly pronounced by the many gardeners present to be the finest they ever had seen.

It may be seen from the photograph that it is indeed a superb plant, without a single tip of the foliage decayed. The photograph will also show that the individual blooms are very large, when their numbers are considered. Only one who saw the collection of such plants can form an idea of the splendour they presented when ranged along the side of the conservatory. I may add that Mr. MacMillan is president of the gardeners' association, and, being a great admirer of the *Journal* for many years, is ever on the alert to read selections for the benefit of the meeting from its pages.—D. C.

Cultural Notes.

Baskets have long been favourite receptacles for growing orchids in, and although not so much used, perhaps, as formerly, they are indispensable to a mixed collection. We seldom see the large baskets, made of hazel rods or other lasting wood, 2ft or more across, that were used for the cultivation of large heavy Vandas or Aërides a couple of decades ago. They had a fine appearance, and the plants did remarkably well in them, but they were apt to harbour insects, and did not last long enough in the moist heat of an orchid house, so large pots have taken their place.

The well-known teak basket, in its various sizes, is a capital receptacle for all orchids of slender growth and pendant spikes of flower. Burlingtonias, Cœlogynes, Dendrobiums of the Pierardi and Devonianum class, Odontoglossum citresum, Masdevallias Chimæra and Backhousiana, small Angraecums and Phalaenopses are only a few of the many that may be so grown, while the basket is often used to bring weak or unhealthy specimens back to a vigorous condition. Owing to the freedom with which air enters the compost, the roots dry regularly, and the plants rapidly improve in health.

The wire basket is not so much used as the wooden article, but it is excellent for orchids that push their spikes down through the compost instead of upwards. Stanhopeas and Acinetas are the most generally known of these. Wire baskets should be very stoutly made, those patterns having a wide top and narrowing below being most suitable, as they allow a free passage for the flower spikes. Large lumps of burnt clay, or ballast, as it is termed, is superior to crocks for laying in the bottom of these,

especially for baskets having a large mesh, as, owing to their size, they cannot slip through, while the make-up is, of course, lighter when these are used.

Sphagnum moss enters more largely than peat into the compost for basket plants. It is more to the liking of delicate rooting plants, and has no earthy particles to silt through and litter up the paths. In suspending the baskets, these should never depend from eyes screwed into the rafters; there should always be a rod provided running from end to end of the house. This prevents drip from condensed moisture running into the plants. Again, they should always be hung over the paths, never over other plants, or when they are watered the drip will injure the latter.—H. R. R.

An Orchid Stud-book.

The editor of the "Orchid Review" writes:—"We enclose a prospectus of the 'Orchid Stud-Book,' and hope you will give the work your cordial support." We have been repeatedly urged to undertake the registration of orchid hybrids, but could not do it without digesting the existing records, and that has been a stupendous task, and not at all likely to be undertaken as a commercial speculation. We intend to continue the registration month by month in the 'Review,' but want whatever support we can get to publish the work. It gives the hybrids which have been figured in your pages, and we hope you will be able to ask your readers to communicate with us. We believe the work will be of the greatest use to all who are interested in these plants. You will find further particulars in the March 'Review.'—Editor, 'Orchid Review,' 12, Lawn Crescent, Kew Gardens."

The following are some particulars extracted from the prospectus above alluded to.—ED. J. of H. :—

"The 'Orchid Stud-Book,' giving the names, parentage, and raisers of existing orchid hybrids, with references to descriptions and figures, with numerous illustrations. By R. A. Rolfe, A.L.S., and C. C. Hurst, F.L.S. (A companion volume to the 'Orchid Review.') This work has been compiled with the object of providing a list of existing orchid hybrids, arranged on a uniform system, giving: (1) The adopted name; (2) the parentage; (3) the

original publication, with (4) a reference to published figures or other important additional information; (5) the raiser or exhibitor; (6) the date of appearance; and (7) the synonymy. It is divided into two parts, Part I. giving an alphabetical list of parents, with the names of the resulting hybrids, and Part II. an alphabetical list of hybrids on the plan above mentioned. Hybrids of identical parentage which have received separate names are treated as forms of one, and as synonyms cannot be arranged alphabetically in the body of the work, an index of them is given, by which their position may be immediately found.

"The work also aims at providing a standard of nomenclature for orchid hybrids, as well as a ready means of ascertaining what hybrids have already been

raised, and for these reasons it is hoped that it will be widely supported by those interested in this fascinating branch of orchidology. In order to prevent the work from becoming out of date, it is intended to record all additions as they appear in monthly supplements in the 'Orchid Review,' and these would naturally be incorporated in the body of the work in the event of a second edition being called for at a future period. It is hoped that this work will prove an effective means of checking the rapidly growing confusion in the nomenclature of hybrids, which so many deplore, and which we believe has largely arisen from the difficulty of ascertaining what hybrids have already been raised. It is specially requested that all intending supporters will fill up and return to us a subscription form."



Cœlogyne cristata, with 400 flowers.

Use and Abuse of Botanising.

After the monthly dinner at the Horticultural Club, held in the Hotel Windsor, on the 8th inst., under the presidency of Mr. Harry J. Veitch, the Rev. Professor Henslow, M.A., F.L.S., &c., gave a most interesting address on the "Use and Abuse of Botanising." Taking the abuses first, he severely criticised those amateurs whom he divided into two classes, the mere gatherers, who, on so-called botanising excursions, do so much to denude the country of its floral and ferny gems by indiscriminate rooting up, only to be followed in the vast majority of cases by subsequent throwing away or installations in gardens followed by neglect which leads to identical results, and collectors who do a vast deal of similar damage on more recognised, but still unsystematic lines. Some of these latter, too, are guilty of criminal selfishness, their chief aim being the unique possession of rarities, to secure which they actually destroy any surplus, and in this way contribute to entire extermination.

A noted station of *Pinguicula grandiflora* was instanced as a case in point, not a single specimen being left after a raid of this kind. Mr. Chas. E. Pearson subsequently instanced similar cases of vandalism in connection with rare birds' eggs and entomological rarities, and the gist of the discussion which followed the address, and in which Messrs. C. T. Drury, Geo. Paul, T. W. Sanders, Waterer, and H. J. Veitch participated, was the absolute necessity of some more stringent laws for the protection of wild plants and wild birds, &c., from the raids now made upon their habitats by amateur so-called botanists and collectors and gatherers, especially including those who for mere purposes of gain "skin the planet," as Shirley Hibberd put it, in order to supply the markets with this vandalised material.

Mr. Drury instanced several cases which had come under his notice of unique ferns which had been destroyed by the repeated collection of their fronds for the making of dried herbarium specimens, so that now nothing remained of such natural gifts to mankind, but a few dried fronds in scattered herbaria, instead of, as in cases he alluded to, not only herbaria generally, but collections of living specimens being permanently enriched by the careful transference of the rarity in a living state to culture, and its subsequent propagation on an extended scale. He also mentioned a kindred case to that of *Pinguicula grandiflora*, a habitat of a rare fern in Scotland being absolutely cleared by a raid of students led by a professor to the spot which had unfortunately become known to them. Professor Henslow subsequently treated of the recognised and invaluable services rendered by herbaria on systematic lines, enabling the comparison by experts of specimens derived from all parts of the world, and thus facilitating that classification which is one of the most difficult botanical tasks.

Turning to the evolution of botanical knowledge, he went back to the old times when plants were only interesting on account of their actual or assumed medical virtues, when the herbalist was practically the only botanist, and as an exemplification of the ridiculous ideas prevalent in those days, and apparently even in these, he produced a recent addition of Culpeper's "British Herbal and Family Physician," of which some 80,000 copies had been sold within the last fifty years, and which was still sufficiently in demand to pay well for publishing. In this book all kinds of occult medical virtues are associated with the influences of the various planets, in what would be a most amusing fashion, did it not involve a very serious reflection on the intelligence of the purchasers and the progress of real knowledge in these so-called enlightened times. At the conclusion of the address and discussion it was announced that Mr. T. W. Sanders, F.L.S., would give a paper, entitled "Back to the Land," at the next meeting of the club on April 19. A very hearty vote of thanks to the Rev. Professor closed the proceedings.

Entomological Notes.

The Leopard Moth as a Fruit Producer.

Reference to this insect at page 190 reminds one of the late Edward Newman's statement, rather startling, that trees infected by the leopard caterpillar often bear more fruit than trees perfectly sound. That some such cases occur I have proof, but I do not think this continues long. The borings of the insect must tend to weaken the tree, though the same entomologist may also be right in his assertion that it seldom kills one. But, by the caterpillar's operations, large branches are sometimes brought off, and it is too well known as a killer of Ash saplings, to the annoyance of Hop growers. It is a good plan to look upon the trunks of trees for patches of eggs when the moths are about in summer. Probably this moth would be much more abundant if

it were not so diligently hunted by the common sparrow and by bats.—ENTOMOLOGIST.

Flower-bud Destroyers.

Farmers and fruit growers are well acquainted with the mischief done to Apple and Pear blossoms in April by the tiny caterpillars or grubs of little moths and weevils, which have deposited eggs in early spring. They eat out the unexpanded parts of the flowers, making a sort of chamber in which they live, at last leaving only the rind, which falls to the ground. The question of moment is, Do these insects seriously reduce the fruit crop? In the opinion of several entomologists, including the great German authority, they do not as a rule. Nature produces flowers on the fruit trees in such profusion that it is impossible for half, or a quarter of them, to come to maturity, so many must drop immature. Where caterpillars are absent it has been noticed that small Apples and Pears frequently fall by thousands: the insects, therefore, help to make a needful reduction.—ENTOMOLOGIST.

San Jose Scale.

This pest, which affects fruit trees, made its appearance in the United States, east of the Rockies, about ten years ago, and it is about seven years since it appeared in Ontario. It spread rapidly in the western portions of Ontario, and caused great loss, especially in the Niagara district, the finest fruit growing region of Canada, where, at St. Catherine's, many large Peach orchards of 10,000 trees were utterly ruined.

By the energetic action of the local Government much has been done to localise the ravages of the disease, which otherwise would have spread to most parts of the Dominion. To-day the solution of the San Jose Scale problem lies within the reach of all fruit growers. Experimentation has demonstrated that there are five more or less effective remedies, of which apparently spraying with a mixture of lime, sulphur, and salt seems at present to be the most popular. The others are crude petroleum; crude petroleum and whale oil soap emulsion; and whale oil soap emulsion, which, though effective, are less popular, owing to the difficulty in making the mixture and the disagreeableness of application.

The advantage of the lime, sulphur, and salt treatment is its economy. One fruit grower states that it only cost him £2 (ten dollars) for outside help to spray forty Apple trees and 800 Peach trees with the mixture. The preparation

is made up on the fifteen, fifteen and ten formula. The lime is slaked slowly in a barrel with four gallons of water, the sifted sulphur added with stirring to the hot mixture, and the whole boiled for an hour. Salt is then added, and the mixture boiled for half an hour longer.

A new insecticide, called the McBain Carbolic Wash, was tried for the first time last summer, and has given much satisfaction; but further experiments are necessary to determine if the winter applications will prove equally successful. It is a black, oily liquid, and smells strongly of crude carbolic oil. The other ingredients are pine tar and fish oil. In California the McBain Wash has been in use for some years as a scale remedy. A strong point in favour of the wash is the readiness and ease with which the spray of the liquid can be prepared, and its application by the spray pump is not an unpleasant operation. The San Jose scale, we might add, is very minute—smaller even than the Mussel scale of our own Apple orchards—and specimens are to be seen in the collection of injurious insects at the Natural History Museum, South Kensington, London.



Tulipa Kaufmanniana aurea.



Alpinia natans.

This is of decorative value only for its foliage, which resembles that of *Amonum*, grown for its scented leaves. The foliage is stem-clasping, each leaf growing gracefully more or less erect, and alternately on the rounded stems. It is an East India plant, therefore requires a warm house (stove), and enjoys abundance of moisture. A deep, wide pan, and a lumpy compost of fibrous loam, sand, and charcoal will accommodate it.

Tree Worship in Somaliland.

The following notes are from Sir Richard Burton's "Ride to Harar," a section of his book which is entitled "Wanderings in Three Continents": "Escaping this danger" (a cavalcade of Somali freebooters) "we painfully endured the rocks and thorns of the mountains and hills. The third march placed us at Halimalab, a sacred tree about half-way between the coast and our destination—Harar. It is a huge Sycamore, suggesting the hiero-sykanimon of Egypt. The Gallas are still tree worshippers, and the Somali respect this venerable vegetable, as do the English their Druidical Mistletoe."

East Lothian Stocks in Pots.

In our issue of last week appeared a full-page illustration of these appreciated annuals, and to-day we show plants of the same subject under pot culture. For the early winter or even spring display these plants might readily form a feature in conservatories, though the plants illustrated were from seeds sown at the usual time—the middle of March, and bloomed in June. By sowing in July or August in cold frames it is possible to have winter or spring flowering pot-plants. The seedlings must be allowed ample room for development, else they will never grow sturdily. East Lothian Stocks are a variation within the Intermediate section, and all the varieties and forms in both Intermediate and Ten-week Stocks have been derived from one species of plant—*Matthiola annua*.

Evergreen Shrubs.

All kinds of evergreen shrubs plant readily now, and start more freely into growth than if planted in late autumn or winter. The great point must be not to allow the roots to become dried, but if this should happen moisten them well. Plant in soil deeply prepared. Hollies, and all the varieties of Conifers, American plants and Rhododendrons, soon become established after spring planting. A mulch of light manure may be placed round them, but if the weather continues dry they will scarcely need water before May, when a good soaking may be given them, and on very warm days a syringing with clear water will be beneficial.

The Genus Prunus.

The genus *Prunus* is represented by so many handsome forms in the list of certificated plants that it must not be passed unnoticed in this relation. Under the name of *Cerasus Puddum* var. *Mr. John Standish* obtained a certificate for it in 1863, and Messrs. Osborn and Son in 1866 for *P. lusitanica azorica*, but it is difficult to trace them in these days; and the same can be said of a variegated leaved form awarded a certificate under the name of *variegata* in 1873.

Those two fine forms of the Cherry shown by Messrs. Veitch and Sons—one *Cerasus Pseudo-cerasus*, certificated in 1896, and the very fine variety, James H. Veitch, honoured similarly in 1899, are fine additions to our spring flowering shrubs; so is *Amygdalus Davidiana alba* (now classed as *Prunus*), for which the same introducers obtained a certificate in 1892. *P. cerasifera purpurea* (*P. Pissardi*), both as a spring flowering hardy plant and as a handsome shrubby tree in summer, has fully justified the certificate granted to it in 1884. The pendulous form of the Mahaleb Cherry obtained a certificate for Messrs. Paul and Son in 1874. *Persica magnifica*, certificated in 1894, is a very handsome Almond, which makes an excellent tree; so does the double white form, certificated in 1899 under the somewhat lengthy name of *P. persica vulgaris alba flore-pleno*, when shown by Messrs. Paul and Son.—R. DEAN, V.M.H.

Tulipa Kaufmanniana aurea.

This early-flowering species was exhibited as a pot subject by Messrs. W. Cutbush and Son, Highgate, N., at the meeting of the Royal Horticultural Society on February 9, when an award of merit was accorded. Our figure shows the form and size of the flower. The segments are long and pointed, coloured red with yellow margins on the outside, and wholly yellow or orange on the inside.

Roses for Old Trees

Nurserymen and florists are often asked to recommend Vines for running up trees, both live trees and dead ones. For northern situations there are but English Ivy covering the evergreen class. Among deciduous Vines, Wistarias, Bignonias, Clematis, Virginia and Japanese creepers are employed. Roses are not often used, yet some of the strong growers are well suited for the purpose. The wild Prairie Rose, *R. setigera*; the Japanese, *R. rugosa*; Gloire de Dijon, many of the *R. Wichuraiana* type, and other free growers would be admirable for such use. Given some support until the branches are reached, the Vines then take care of themselves. The shoots are soon supported by the tree's branches.

Apple, Northern Greening.

This variety, so well known in the North, is nearly always a close bearer. Though correctly named Northern Greening it is often grown under the name Winter Greening, but this, and Walmer Court, and Cowarne Queening, are but synonyms. It is a good kitchen Apple of a greenish yellow colour, in a warm season marked with stripes and flushes of red. The juicy flesh is white and crisp, with a briskly acid flavour. The fruits are in season during February, March, and April, but as a rule it crops well only in alternate years. At the same time it is a good late sort, especially for cold soils or for orchards. In Scotland it is often grown as an espalier. The habit of the tree is erect and full of spurs. As a sauce Apple it is considerably in demand. An illustration of a fruiting branch appeared on page 239 last week.

Bulbocodium vernum.

It is remarkable, when we come to think of it, how much our gardens owe to the bulbous flowers for their decoration in early spring. Banish these from the gardens and what a woeful desolation there would be! They are wonderfully varied, too, and it is possible to discover among these early blossoms almost every colour and many tints. Among these early bulbous flowers there are none save *Bulbocodium vernum* which can give us the same rich purple hue as that flower. One despairs of being able to describe it, but there is a tinge of magenta about it, perhaps, and an effect no other flower of its time can provide.

Bulbocodium vernum is closely allied to the *Colchicums*, or Meadow Saffrons; but, with a few species of these, it flowers in spring, generally coming with the later Snowdrops and the Winter Aconites, when it forms a welcome contrast to these. Even if it linger until the Crocuses appear, it differs in colour from these favourite flowers, so that it is ever acceptable. *Bulbocodium vernum* is like a bright purple *Colchicum* in flower, and its leaves come after the flowers, like those of the Meadow Saffrons. It is a capital plant for arranging in clumps of five or more together in the border; while a good mass is more pleasing still.

The leaves of the typical form are green, but there is a charming variety which has its leaves banded with creamy white or pale yellow. This passes under the name of *B. vernum fol. var.* in brief, and those who care for fine-foliaged plants will do well to secure it in autumn, when the planting time comes on. It likes a rather heavy soil, but it thrives well in a light one also; while it can either be grown in full sun or partial shade. About 2in or 3in below the surface is a good depth for the corms (or "bulbs"). *Bulbocodium vernum* is perfectly hardy, but it has one dire enemy in the shape of the slug, which delights to crop its flowers when in bud, and to destroy its leaves. This enemy will travel a long way in the garden to a clump of *Bulbocodium vernum*, so that a nightly raid upon the destroyer when at work on the *Bulbocodium* will be advantageous to the garden. So bright a little flower, and one so moderate in price, ought to have a representation in any garden where bulbous flowers are grown. Either the common typical form or the one with variegated leaves, which is a little dearer, will be found a welcome inhabitant of the garden.—S. ARNOTT.



Pot Roses and their Culture.*

The Rose is deservedly one of the most popular subjects in horticulture, and has been rightly designated the Queen of Flowers. It is also one of the most useful, as it can be had in bloom at all seasons of the year, and is readily adapted to nearly all purposes where flowers can be employed. It is a subject all gardeners and most amateurs are interested in.

The subject of this paper being so extensive I merely intend dealing with the following headings: Propagation, "growing the plants on," selection of varieties for pot work, and growing the plants for bloom. The best stock for pot work is the common seedling Dog Briar or *Rosa canina*. The stocks should be two years old, and have good straight necks about as thick as a lead pencil. The best time for potting the stocks is in October, and they should be put into 60's or 3in pots, in a compost of two-thirds good loam and one-third well-rotted manure, with a slight sprinkling of sand to keep the compost open. No crocks are required, as they do not remain in this sized pot very long.

When potted, the stocks should be placed in a house with very little heat, and be syringed daily to help them to break into growth, the heat being increased until it reaches an average temperature of from 55deg to 60deg. About the second or third week in November the stock is ready for grafting. Great care should be taken in the selection of grafts, the well-ripened, hard wood only should be used. This should be cut up into pieces about 2in long, having a good sound bud at the top. In potting the stocks, it is necessary to leave 1in on the top part of the root above the soil on which to put the graft. If this is not done the stock has to be pulled up an inch to enable one to put on the graft, and this breaks off the young, newly-made roots, which is apt to cause a check. The stock should be cut transversely, just below the neck or where the root and stem join. The root should then be cut through with a slanting cut about 3in long, commencing at the base and cutting upwards. A slanting cut should then be made on the graft, commencing at the back of, and as near the eye as possible, to correspond with the cut on the stock. Great care should be taken to see that both sides of the graft meet both sides of the stock, so that the cambium of the one rests directly on the cambium of the other. The union should be bound tightly round with raffia or bast; but if, however, it is found impossible to make both sides meet, one side only must meet or no union will take place.

After the plants are grafted they should be put into closed cases practically airtight, with an ash or fibre bottom, which must be well damped before the plants are staged up. They must have a sharp bottom heat, which is generally afforded by two or more hot-water pipes running underneath the stage on which the cases are fixed. It is also advisable to have the front of the stage bricked up, so as to keep as much heat as possible underneath. When the grafts have been in the cases three or four days it is necessary to open them for about an hour or so each morning to dry up any superfluous moisture that is in the case. This must be done each day for about a fortnight, when the grafts will have grown 1½in to 2in. They are then ready to come out of the cases, and should be placed on a stage in a very close house, having an average temperature of 60deg. In very rare instances are the grafts ready to come out all together, so that care must be used not to take anything out of the cases until it has made 1½in to 2in of growth, and a good healthy callus has been formed.

After the grafts have been taken out of the cases they must be kept moist at the roots, and syringed very lightly with chilled (tepid) water twice a day, or if the day happens to be sunny they will require it more often. When the grafts have been out of the cases about a month they are ready to pot on into 48's or 5in pots. Thus ends the propagating stage.

Passing to the growing of the plants, the same compost is used: two-thirds loam, one-third manure, and again a little sand, only the soil this time need not be knocked up quite so finely. The 48-sized pots should be crocked with a stop or large crock to cover the hole, and about three smaller pieces. These should be covered about an inch thick, with rough fibre picked out of the soil, and the plant should be knocked out of the 60's or 3in pots, when it will be found to have made a network of white fibrous roots. Great care should be taken not to damage these or break the ball of soil. Here is shown the advantage of not crocking the 3in pots, as the ball can be transferred without damage through removing the crocks, thus avoiding a check, which is very detrimental, and often fatal to a plant at this stage. The plants

should be potted firmly, though not hard, into the 48's, taking care to put the graft down below the surface of the soil, so that it can get on its own roots; and a close house with a temperature of 55deg upwards will be found most beneficial.

After the plants have been potted they should stand a day or two without water, though they should be thoroughly syringed from the first. When the balls have got fairly dry they may be watered with chilled water through a rose can. It is much better in this and all stages to fill the pot up with water occasionally than to give frequent but insufficient waterings. The house will not require any air until April, and then only a very little on fine days.

After about 6in to 9in of growth has been made the plants should be staked with sticks 15in to 18in long, taking care to put the stick at the back of the graft, so as to be an additional support to it: this is for dwarf growing varieties—climbers should be staked in the same way, only with 3ft 6in to 4ft stakes; and, as the plants grow, they will require additional tying, with judicious watering and constant syringing. This is all the attention the plants will require whilst in 48-sized or 5in pots.

When the Rose plants are in a young state they are very tender, and are susceptible to attack from disease and insect pests. The disease that attacks them mostly is white mildew, which is generally caused by a draught or too cold a temperature, or if leaves infested with mildew have been left on the grafts this will spread as the plants grow. A good preventive for mildew is to smear the pipes with a mixture of powdered sulphur (yellow or black will do), and a little lime or flour made into a paste, with cold water, until it is thin enough to be applied to the pipes with an ordinary whitewash brush. The sulphur by itself would answer the purpose, but when it gets dry it soon comes off, as it has little or no adhesive properties, and a little lime or flour mixed with it makes it stick to the pipes better. The sulphur fumes thus given off are fatal to mildew, and if this preventive is used, white mildew will rarely be troublesome. If it should appear, a little sulphur dusted on the infested foliage will prevent its spreading, and all air should be kept off until the disease has disappeared.

Black mildew is much worse to deal with than white, and damages the plants so quickly that it must be attended to immediately its appearance is discovered. Black mildew only attacks young growing foliage—the old mature leaves are quite impervious to it. It is caused through overwatering, or a cold, close, damp atmosphere. It is not so easily discovered, as it first makes its appearance on the under side of the young leaves in the form of a greyish fungus. This causes a dark green blotch or spot on the top side of the leaves, and if remedies are not taken to check it, it will soon cause the leaves to fall off, and thus cripple the plant. The infested foliage should be lightly dusted with sulphur; all water being withheld from the roots of the plant: as much air as possible given so as not to cause a draught; and the temperature of the house raised so as to create a warm, dry atmosphere. This will get rid of black mildew as quickly as anything, as moisture is essential to its development.

The insect pests most common are green fly and red spider. The former is easily got rid of by fumigating with almost any of the numerous insecticides advertised in gardening papers, or by the old way of burning tobacco paper. The second, viz., red spider, can be got rid of by hard and frequent syringing with clean water, taking care to get at the under side of the foliage, as the red spider is easily drowned, and cannot stand moisture in any form.

Assuming the plants have grown well, they will be ready to pot on from the 48's or 5in pots, into 24's or 7in, or 16's or 8in pots, by the end of April. The soil again should be two-thirds loam and one-third manure, but no sand is now necessary, and the compost should be left fairly rough, so as to retain the fibrous pieces as much as possible. This time the soil should be well rammed round the sides of the pot with a ramming stick, so as to leave no spaces for the roots to get into and perish. In this stage the plants should be potted very tightly and hard. Careful watering so as not to get the balls sodden nor get too dry, and constant syringing, with an occasional tying, is all the attention they require whilst growing-on in the large pots. It is simply a repetition of the treatment given to them when in 48's.

About the middle of June the fire heat may be taken off the houses, and air must be given so as to keep the temperature below 90deg if possible during the summer days, and the houses must be closed at night so as to keep as even a temperature as possible. By the middle of September the plants will have completed their growth, and may be placed outside on an ash bottom to ripen their wood. All buds should be picked off, and all long straggling shoots topped, until the plants have become thoroughly established, then they may be left to bloom, as this helps to mature the wood by causing the growth to stop. This treatment applies to dwarfs. Climbers are treated in much the same manner, except that their long growths must be encouraged, and no topping is necessary: they should be tied up 6ft stakes or up the roof of the house.

(To be continued.)

* A paper read before the Feltham, Belfont, and Hanworth Horticultural Mutual Improvement Society, by Mr. Benjamin E. Nettleton, Rose grower to Messrs. T. S. Ware (1903), Ltd.

Book Notice.

The Fruit Garden.*

The fruit garden is one of the three main departments of horticulture, and to our mind it is superior to the other two, *i.e.*, those of flower culture and vegetable growing. Fruit culture demands much the greater skill and more extended experience, for while mistakes in flower and plant culture, or in vegetable gardening, can be remedied generally within one season, the same cannot be accomplished with ruined fruit trees.

The book before us ought to find a place. It deals with this great subject in a very useful, though not altogether in the most comprehensive way. Every tree or shrub whose fruit is of value in dietary, is included in the list of subjects upon which hints are given. The reference to any one of them is of the simplest, since the book is alphabetically arranged. Though Mr. George Bunyard and Mr. Owen Thomas are the principal authors, they are by no means alone. Mr. Bunyard represents commercialism; Mr. O. Thomas, professional private gardening; and are there two better known or better qualified men in their respective realms?

But Mr. James Hudson, of Gunnersbury House, whose experience extends considerably over a generation, perhaps nearly a generation and a half, is also drawn upon for special information, and Mr. W. Watson, of Kew, furnishes a descriptive chapter, entitled, "Tropical Fruits, and How to Grow Them." Our own veteran contributor Mr. George Abbey, executed the numerous drawings, illustrating how to prune, pot, or train the trees, and which very materially add to the utility of this book, which is also well illustrated by half-tone blocks.

The breadth of treatment is shown by the fact that there are extended chapters on fruit culture in America, in France, and in the Channel Islands; chapters which, we venture to think, will be amongst the best-appreciated by considerable numbers of subscribers. Insect pests, of course, compel attention, and the newer subjects of whole-fruit preservation and the best means for fruit storage are amply described, both by text and illustration. And carrying the utilitarian aspect to a legitimate conclusion, the later pages are entirely devoted to outline drawings of fruits—fruits of all kinds—to show to what extent the produce from the same variety will vary. These outline drawings, beginning with Apples and ending with Strawberries, occupy from page 397 to page 496, or 99 pages altogether.

Following the cultural notes given under each chapter there are selections of varieties, amounting to 100 in the case of Apples, 69 of Pears, 32 of Peaches, 43 of Plums, Bullaces and

Damsons, and 14 of Nectarines. These varieties are all described with skill and accuracy, and what is of great value from a practical gardener's point of view, some words are usually given, describing the character of the tree as a grower and bearer. An attempt has evidently been made to superscribe and supplement the "Fruit Manual" which has been in need of revision for some years. As a work of reference quite as much as a guide to the cultivator, the "Fruit Garden" can therefore be recommended. In this place, too, one must congratulate the editor (Mr. H. H. Thomas) on the painstaking care evinced in the text and arrangement, and though slips may be discovered (we notice that Thompson Pear is given as Thompson's) the book augurs well for the future work of our younger editors.

One could have desired that more of the commercial element were included: facts, that is, which relate to rentals, railway rates, labourers' wages, cost of trees on given areas, average estimated returns from various crops, and much more could have been said about the disposal of produce on the markets. The day has come when even professional private gardeners (for

whom the book is mainly written) desire to know and learn beyond their own particular interests, and on national grounds the inclusion of these facts would have been greatly welcomed. The question also arises whether such a book would not have added to its undoubtedly high value and to its purpose, to have had classification schemes included for the various fruits. No mention is made of Professor Wagh's "Systematic Pomology," but it would not have swelled the size of the work greatly to have given some space to so important a subject, and it would, moreover, have awakened a new interest in the study of pomology, especially among the younger cultivators, and others who are interested.

In his short treatise upon the Apple, Mr. Bunyard recommends the utilisation of roof-spaces wherever this is available and within the range of practicability.

In cold and northern districts he thinks the Apple, at least the finer varieties, well deserves wall space, and in the south of Scotland is by no means infrequent to cultivate the softer-fruited varieties on the garden walls. Referring to outdoor Peaches, on walls, Mr. Owen Thomas is of opinion that gardeners do not fully appreciate the adaptability of this tree in the list of hardy fruits, and names a number of Midland counties wherein it succeeds in the open. Yes, and here, again, Scottish gardeners have persevered, and we can mention a number of places where splendid Peach crops are gathered from open-air walls in every favourable season. Indeed, this practice of Peach culture on open walls in the North is largely a matter of necessity, in the absence of sufficient glass-house protection.

In his list of Apples Mr. Bunyard omits the Melrose, which we occasionally have sent to us, and which is an early dessert Apple of good eating quality, though no good for travelling, and which soon passes out of season.



Stocks as Pot Plants. See page 249.

* "The Fruit Garden" by Geo. Bunyard, V.M.H., and Owen Thomas, V.M.H. London: Published at the Office of "Country Life," Southampton Street, Covent Garden, W.C., 1901. Price, 21s.

We should like to quote what Mr. O. Thomas says in regard to Apricot culture as a commercial feature:—

"When one realises that this valuable fruit has been with us for a matter of nearly 400 years, having been introduced into Britain from Italy by Wolf (gardener to King Henry the Eighth), in the year 1524, it does seem incredible that its merits, especially as an article of commerce, have not been more fully recognised, and its great possibilities in this direction more developed. We cannot here shelter ourselves under the plea that the climate of France (from where ten times as many Apricots as we grow are exported to Britain) is so much better suited to the growth of this fruit tree than that of England.

"The contrary is the case, and if further proof is needed it is to be found in the fact that English-grown Apricots, if delivered in good condition, realise in the market at least 20 per cent. more than do the French; yet as an article of commercial value this fruit has received scarcely any attention, nor have its possibilities in this way been turned to practical use by our horticulturists. As one item that goes to make up the importance of the minor industries associated with the land in this country, the Apricot, I am well convinced, is deserving of more serious consideration.

"A wall with a warm aspect is necessary to grow it to perfection. Where walls are non-existent, I should certainly not recommend expensive brick ones to be built for this purpose; but what I would recommend to those who wish to make money out of their gardens is to plant an Apricot tree against every available inch of warm wall they may have about their premises, whether it is a wall of the house in which they live, or the buildings by which this is surrounded. I may say that it has been proved beyond doubt, and the fact is now generally admitted, that in the south of England there are miles of garden walls planted with varieties of Pears, that would succeed much better planted out in open quarters than against warm walls. They might well make room for the more remunerative Apricot.

"The hardy variety "Breda" will succeed well as a bush or standard in warm and sheltered positions in the open garden in the south of England, and deserves to be more extensively cultivated in this way. Before the trees are planted the borders should be deeply trenched and well manured, in order to be able to maintain not only the vigour and fertility of the fruit trees, but also the surface crops, such as early vegetables and salads."

These statements ought to cause planters in the South to pause and consider their position. At a moment when fruit culture as an industry is receiving direct recognition, they will have an added weight. In another issue we shall review the concluding features of this book.

GARDENING YEARBOOK, 1904.—We have received a copy of this unquestionably useful book from the publishers, Messrs. W. H. and L. Collingridge, 148 and 149, Aldersgate Street, London, E.C. The price is 1s. net; by post 1s. 3d. The contents embrace "A Year's Work in the Garden—What to do Day by Day," "Choice Vegetables and How to Grow Them," "Why and How to Dig," "Best Flowers for Pretty Borders," "Orchids for Amateurs," "Fruit for Home Supplies," "Garden Chrysanthemums," and "Hints for Amateurs"—all subjects that appeal to those who take an active part in making the most of their gardens. Two coloured plates are included in the volume, which is also fully illustrated. Other features are a calendar, diary, lists of new plants, fruits, and vegetables introduced during 1903, lists of gardening societies and public parks, and ruled pages for recording gardening operations.

Woodhatch Lodge, Reigate.

In the space at command on page 229 of last week's issue, we briefly noticed some of the remarkable *Dendrobiums* grown under Mr. C. J. Salter's care at Woodhatch Lodge, and the comments herewith bear upon some other features. One of these was the Sweet Peas in boxes. The boxes are roughly 9in deep and the same in width, with 8ft length. The seeds had been sown in lines, one kind by itself, although in each box there were two kinds at least, and labelled. The Peas had germinated very evenly, and on March 10 the seedlings were 3in high, in a Peach house just started.

Hardy border Carnations are cultivated extensively, and these were being planted in beds on a sunny south border, three rows of plants, about twelve in a row, in each bed. The varieties represented the best of recent introductions, and save for the shortening of a few leaves—the destructive work of rats, of which there had been almost a plague—the plants were splendid samples. While sheltered by a good fruit wall at a short distance from this border, the beds were also backed by a line of espalier Pears, the latter being the best quality dessert sorts. The Woodhatch garden is admirably situated, and lies well to the sun, the soil seeming to be well-drained, sandy loam.

A collection of hardwooded plants in flower showed that to these some attention is also given, and that successfully, too. A point of some interest, because so seldom seen, is that the indoor Peach trees are *nailed* to the whitewashed wall, there being no wires according to the usual custom. The trees were well-trained, with robust young wood, and promise well all round. A vinery but lately replanted, showed the Vines breaking and flowering evenly and strongly, and there was a sweet, growing "smell" in the atmosphere. Inside borders in this case are alone (and wisely) favoured. One knows exactly where the roots are then, and can feel also that all are faring alike.

Chrysanthemums, for which this garden has a just fame, were still unpotted from the 3in size, though the robust plants were quite ready; only Mr. Salter does not believe anything is gained by very early shifts. *Nepenthes* are a class of plants apart, but these furnish an interesting spectacle above the trim and shapely *Crotons* and other stove plants. The "pitchers" were borne abundantly.

By way of supplying cut flowers, Daffodils in varieties are forced considerably, but not in pots—in long boxes, of a similar size to those used for the Sweet Peas. A sturdy batch of *Calla Elliottiana* coming on for flowering was such as many gardeners would have envied. The flowers here are usually equal in size to those of *C. aethiopica*.—D.

Great International Horticultural Exhibition.

The Royal Caledonian Horticultural Society, which was founded in 1809, holds two exhibitions annually in Edinburgh—in May and September. On five occasions, 1865, 1869, 1875, 1882, and 1891, the society has organised international exhibitions, each of which proved a great success. After a lapse of fourteen years since the last international, the society feels that the time has now arrived when another should be held, to show the marked advancement in horticulture which has been made during that period. With the view of having at this exhibition the best examples of horticultural skill, it has been arranged to issue at once an advance prospectus giving a few particulars of some of the principal classes, in order that exhibitors may have ample notice and opportunity to arrange for competition. The council reserve power to delete, alter, or revise any of the competitions before the final schedule is issued. His Majesty the King has graciously presented a valuable Silver Cup, which will be awarded at this exhibition to the best exhibit in the competitive fruit classes. The advance prospectus mentioned above has now been issued, and can be obtained from the secretary, P. Murray Thomson, S.S.C., 5, York Place, Edinburgh. Briefly, we would note that a representative committee to co-operate with the council of the society has been appointed, and includes men from different parts of England, Wales, and Ireland. Among these are Sir Michael Foster, Lord Redesdale, Dr. M. T. Masters, F. W. Burbidge, Rev. W. Wilks, R. Irwin Lynch, and Philippe L. Vilmorin, Paris. The list of subscriptions intimated to January 31, 1904, is a long one, and numerous sums of £10 and £20 or more, are promised by various Scottish nursery firms and bodies. The Corporation of the City of Edinburgh give £50. Nineteen chief classes are specified in the advance schedule, the first being for a collection of dessert fruit, the first prize being £25, but the prizes for decorative effect are kept distinct. Mr. W. H. Massie (of Dickson and Co., Edinburgh) offers a 50 guinea challenge trophy for eight bunches of Grapes (to be won three times), and along with this goes a gold badge and £15. We need not further specify the classes, for our readers will understand that every section will be amply represented, and we can assure them that the prizes are enticing. The show will be held next year.

With the object of encouraging investigation into problems of practical and scientific interest, the council have resolved to offer special awards of gold, silver, and bronze medals and other awards for exhibits illustrative of experiment and research, such as (1) an exhibit showing the result of any research or experiment relating to the minute anatomy or physiology of plants (including chemistry), and having a bearing on the cultivation of plants; (2) any new fertilising material, indicating the amount to be used, the time and mode of application, the approximate cost and the results; (3) improved apparatus for forcing or retarding plants for market; (4) improved seed-testing apparatus; (5) more effective means of combating both fungus and insect garden pests; (6) teaching models and appliances, leaning rather to horticultural teaching than to botany, e.g., models of grafts, budding, cuttings, flowers to show fertilisation, &c. Recognising the outstanding importance of hybridisation and cross-fertilisation, the council invite illustrations, both positive and negative, of these branches of horticulture. Large exhibits are not desired, but each should be accompanied if possible by the parents, and by a statement showing what was the exhibitor's object when carrying out the experiments. It will thus be seen that the exhibition will be one of extraordinary interest, and deserves the fullest support.

NOTES & NOTICES

The Journal's Dahlia Analysis.

This yearly feature of our pages will appear in next issue. Mr. E. Mawley is the compiler of it.

Appointments.

Mr. W. Batchelor, late gardener to Miss Von Goetz, Holmfield, Lyndhurst, has been appointed gardener to Dr. Woakes, Belvoir House, Fareham, Hants. He adds: "I got this place from the *Journal*, which I take regularly."

Hybrid Potentillas.

The accidental omission of some words from my note on the above on page 191 makes it rather misleading. It should have been to the effect that "*In addition to the hybrid Potentillas sold under name, and which are only dwarf when allowed to trail upon the surface unsupported by a stake, there are such species as the yellow P. verna,*" &c., &c.—S. ARNOTT.

National Chrysanthemum Society.

The National Chrysanthemum Society is making a new departure, and adding one more to the number of exhibitions in its programme of the present year, by arranging for an exhibition of Chrysanthemums grown for market. A special committee has been formed, with Mr. Robert Ballantine as the chairman, to arrange the details and carry out the said exhibition. The date has been fixed for Wednesday, December 14 next, and the large Essex Hall, Essex Street, Strand, has been engaged. A preliminary schedule of prizes has been prepared and issued.

Gas Tar.

This is a bye-product in the manufacture of gas, and is an excellent substance for smearing inside of flat trays for catching beetles or weevils that prey on foliage at night, such as the genus *Rhynchites*, black vine, clay-coloured and red-legged garden weevils, respectively, *Otiorhynchus sulcatus*, *O. picipes*, and *O. tenebrioides*, the trays being placed under the bushes or trees, and then shaken over them after dark at night.

Tar water, made by boiling gas tar, $\frac{1}{2}$ lb in 2 galls of water, for half an hour, or until it will readily mix with water, and then diluting to 50 galls with water, is, perhaps, the best deterrent of insects depositing their eggs on or in plants. The tar water is particularly valuable against the Marguerite fly (*Phytomyza affinis*), spraying not only on the plants very lightly, but also on the stages, &c. The smell of tar is very objectionable to this pest, also to the celery fly, and does good work on the larvæ on the blisters.—E

Reading Gardeners' Mutual Improvement Association.

The last fortnightly meeting of the above association was held in the Abbey Hall, and there was a good attendance of members, Mr. W. Barnes presiding. Mr. J. Crook, of Forde Abbey, Chard, gave a most interesting lecture on "Spring Flowers," confining himself principally to the Snowdrop, Narcissus, Primrose, Iris, Myosotis, Anemone, and Chionodoxa. He strongly advocated that these should be planted in as natural a manner as possible, doing away with all formality in their arrangement, and growing them as far as circumstances would permit in the grass. A good discussion followed, in which Messrs. Barnes, Townsend, Powell, Neve, Jennings, and Exler took part. The exhibits were exceedingly beautiful, consisting chiefly of spring flowers, both indoors and out, and comprising Ghent Azalea, Azalea mollis, Indian Azalea, Polyanthus, Blue Primroses, Snowdrop, Lilac, Deutzia, Hellebores, Streptosolen Jamesoni, Tulips, Primula floribunda, and P. obconica from Messrs. W. Townsend, Sandhurst Lodge Gardens; T. J. Powell, Park Place Gardens; and T. Nash, Bulmershe Court Gardens; whilst Mr. F. Lever, Hillside Gardens, staged six well-trained plants of Myosotis oblongata perfecta, seed sown September 2, 1903; and Mr. H. Sims, Fawley Lodge Gardens, a specimen plant of Cymbidium Lowianum.

Obituary: Mr. H. Herbst.

We regret to announce the death of Mr. Hermann Herbst, of Stanmore, Kew Road, Richmond, which occurred somewhat unexpectedly on Friday last. Cremation took place at Woking on Tuesday afternoon at 4.30.

Obituary: Mr. Samuel Ainsworth.

This old member of the London seed trade, so long associated with the firm of Messrs. James Carter and Co., High Holborn, and so widely known, died on the 12th inst., at the age of seventy years. He entered the service of James Carter in 1850.

Cassell's Dictionary of Gardening.

In your issue of March you print at the head of your list "Cassell's Dictionary of Gardening," the price of which is mentioned as 21s. May we ask you to be good enough to state that the book is published in two volumes at 30s. the set, net?—CASSELL AND COMPANY.

Fruit Cultivation in Ulster.

A few days since a demonstration in pruning and the general cultivation of fruit trees was given in the extensive orchard and garden of Mr. Henry Rose Cleland, Bedford House, Moy, County Tyrone, by Mr. Stephen Magill, county instructor in horticulture. As the district is rapidly becoming a centre for fruit growing of all descriptions the gathering was largely attended, most of the fruit growers and their gardeners being present. Different modes of grafting, budding, and pruning were shown, and the improvement of old trees was explained.

The Grass of Parnassus.

The common or English name of this pretty little bog plant is from the Mount of Parnassus, but on what account is not clear or certain. It is the only British species, and is found in bogs, principally in the South. Sometimes it is cultivated, as at Kew, and furnishes a very interesting little subject. It is an exceedingly elegant plant 8 in to 10 in high, with solitary cream-coloured flowers, beautifully veined. The nectaries are fan-like, fringed with white hairs, and terminating in yellow, wax-like glands. It blossoms from August to October, and is perennial.

Spring Show at Croydon.

In connection with the Croydon and District Horticultural Mutual Improvement Society, an exhibition of spring flowers (feature, Daffodils) and plants, will be held at the Art Galleries, Park Lane, Croydon, on Wednesday, April 20, 1904, from 3 to 10 p.m. The object is to create and encourage a love of horticulture in the minds of the masses. The admission is free, and there will be music at intervals. Application for space for exhibits is to be made not later than Saturday, April 16, to the Hon. Sec., Mr. H. Boshier, 62, High Street, Croydon.

The False Alarm.

The only contemporary record of the lighting of the beacons, which conveyed to the Border country the false intelligence that Napoleon Bonaparte had landed on these shores, is contained in the columns of the "Kelso Mail" of the day following the event and in subsequent issues. At the present time, when the False Alarm has just been celebrated by the relighting of the signal fires on the hilltops of the Borders, whence they blazed a hundred years ago, and by a commemorative gathering of Borderers in Edinburgh, the extracts from the "Mail's" reports of the incident given in the "Scotsman" will be read with interest.

Monster Hyacinth Competition at Sheffield.

In the early autumn the children attending the Public Elementary Schools in Sheffield were invited to purchase, through their teachers, Hyacinth bulbs in pots with the understanding that an exhibition would be arranged in the spring and prizes offered for the best specimens from each school. The bulbs were supplied ready potted, and with printed instructions, at 4d. each complete. Thirteen thousand of them were sold, and an exhibition was held in the Corn Exchange on Thursday, Friday, and Saturday of last week, when 4,500 scholars exhibited 5,000 Hyacinths. Prizes ranging from one shilling to half a crown were offered to each school department. Prizes were also given for drawings of the plant whilst growing, and also for the best essays on the Hyacinth by children of various ages.

Decorative Pelargoniums.

Among the numerous plants which form such a brilliant display in the Covent Garden Flower Market during spring and early summer, few are more admired by casual visitors than those Pelargoniums that partake of the Regal and Show types, and which are commonly known by the appropriate but not distinctive name of "Decorative Pelargoniums." These handsome plants comprise a large number of varieties distinguished by the possession of several excellent qualities, which render them such popular favourites that their culture receives a very large share of attention from the nurserymen and florists who grow plants chiefly or exclusively for market.

The flowers, in the majority of the varieties that are largely grown, do not possess the smoothness and regularity of form which characterise the Show Pelargoniums, but they are extremely freely produced in enormous trusses, and the colours are very brilliant and diversified. Further, under good management the plants are sturdy and compact in habit, with rich dark green foliage, and they can be easily had in flower from early March onwards. Many of the varieties also have blooms with beautifully crimped or fringed margins, that add considerably to their attractions, and admirably fit them for employment in bouquets, &c. Indeed, nearly all the varieties are remarkably well adapted to supply blooms for cutting, and large numbers of plants are grown for that purpose alone.

As regards the employment of this section of Pelargoniums for general decoration, their value is really inestimable during March, April, and May, and that they are very widely appreciated for this purpose may be judged from the immense numbers annually brought to market. One firm alone propagates upwards of seventy thousand plants every year, while many other growers also grow them extensively.

The majority of the plants that appear in the market are compact, vigorous specimens, about 18in in height and nearly the same in diameter, clothed with foliage down to the rims of the pots, and bearing a dozen or more dense trusses of large flowers. They are chiefly one-year-old plants in 48-size pots, and although cut-backs in larger pots are numerous, the former are most in demand. Better examples of cultural skill could scarcely be seen, for the shoots are exceptionally stout, firm, and short-jointed, starting from the main stem an inch or two above the soil, while the leaves are thick, of a rich healthy green colour, and often 4in or 5in in length and breadth. Among the many thousands of plants in the nurseries of the best growers scarcely one can be seen that indicates the slightest approach to the drawn, sickly appearance which marks too many Pelargoniums in private collections. Green fly, the invariable attendant on bad cultivation, causes little trouble to these wholesale growers, whose every effort is directed to insure vigorous growth and perfect maturation of the wood and foliage. Much can be learned from these cultivators, for, as in all cases of growing for profit, the most economical means of producing the best results are generally adopted—two points of considerable advantage, not only to them, but to gardeners also. Therefore a few particulars concerning the treatment these useful Pelargoniums receive from the most successful growers may prove serviceable to some readers.

The systems adopted by different cultivators vary slightly, but only in minor details, and these will be referred to as we follow the progress of the plant from the cutting state until ready for market. First, as to the important operation of propagation, which it will be readily understood must be commenced early to give the plants all the time possible for making growth if they are to be good specimens by the following spring.

The earliest cuttings are obtained from plants being sent to market in April, and consist of the side shoots from the principal branches, which are removed without any detriment to the appearance of the plants. These cuttings are prepared in the ordinary way, and inserted singly in the centres of large thumbs or 60-size pots in a light compost of loam and sand, sometimes with the addition of a little leaf soil. The pots are placed on shelves in one of the houses, usually where plants are being advanced into bloom by a slightly higher temperature. Shading is necessary until the cuttings are well rooted, and water is carefully supplied, as the early cuttings, not being so firm as those obtained later on, are very liable to damp-off.

Propagation is continued throughout the next two or three months, but the cuttings are then obtained from plants in stock, all those with the best coloured and finest flowers being selected for the purpose. Short-jointed, firm shoots are chosen in preference to such as are less matured, and very much of the after-success is found to depend upon attention to this matter. These are inserted in similar soil as the first batch, but usually three or four in a large 60-pot, or a greater number in one of the 48-size. As the sun is powerful at that time, shading receives special attention, so as to prevent the leaves "flagging" excessively.

The cuttings that are inserted singly in small pots remain in them until roots have been well formed, when the young plants are at once shifted into 48-size pots, the size in which they are sent to market. The soil employed consists of rather heavy turfy loam that has been stored up for some time previously to use, from which only the roughest portion is removed, the rest being broken up with a spade. A small quantity of sand is added, and occasionally some horse manure or Clay's Fertiliser; but the two latter, where the loam is good, are by no means indispensable ingredients, although they appear to have a beneficial influence on the colours of the flowers.

The pots are either new or perfectly cleaned, so as to prevent the soil and roots from adhering to the inner surface. The drainage consists of potsherds or broken bricks, the former being more generally employed, the very robust-growing varieties only requiring a single piece placed concave side downwards over the hole, but those that are more delicate in habit need several pieces. As to the system of potting, some advocate ramming the soil into the pots as firmly as possible, while others only render it moderately firm. Good results are produced by both practices, but the former is preferred.

The cuttings, struck several together, are, as they become well rooted, shifted into thumbs or 60-size pots, and subsequently when well established they are transferred into 48's in successional batches from September to Christmas, so as to maintain the supply of flowering plants from March to July. In all cases the houses containing the newly-potted plants are kept rather warmer, and partially shaded for a short time, until the plants have recovered from the effects of potting, when a lower temperature and abundant ventilation are requisite.

Messrs. H. Cannell and Sons, Swanley, Kent, have been good enough to name and describe some of the best decorative Pelargoniums as follows:—

Lily Krumholz.—Large rosy-magenta flowers, black blotch on each petal; large trusses; dwarf spreading habit.

Paul Oliver.—Bright rose, suffused orange and slightly marked salmon, white centre, crimson blotches.

Duke of Cornwall.—Gigantic, large, well-formed flowers of great substance; slightly crimped petals, reddish crimson, each petal bordered light salmon; splendid branching habit; a standard variety. (See illustration.)

Lord Carrington.—Of a beautiful mauve-purple shade with a large crimson-lake blotch in the upper petals; enormous large flowers and trusses; quite a distinct variety; habit first-class.

Lady Carrington.—Of a most beautiful tint of blush-white, slightly crimped margins, and a slight reddish maroon blotch in the upper petals; large trusses, splendid habit.

Countess of Crewe.—Fine bold flowers of an attractive satiny-rose shade; petals beautifully crimped, and of thick leathery substance; splendid.

Lord Kitchener.—Crimson-scarlet, and considered a fine improvement on the well-known variety *Martial*.

White Fanny Eden.—An exact counterpart in habit of *Fanny Eden*, from which it is a sport; floriferous, and very dwarf.

Mrs. Geo. Gordon.—Soft satiny-pink, perfectly distinct from any other; a most attractive and pleasing shade; habit dwarf and bushy, and all that can be desired.

Alice Hayes.—A very beautiful white, free flowering and good habit; a sport from the well-known variety *Dorothy*, an exact counterpart, excepting in colour.

Crimson King.—Good habit; one of the most popular varieties for market purposes; as its name denotes, intense crimson colour.

Viola.—Soft purple-violet, shaded lighter; a most distinct colour in this family; flowers well formed; free bloomer; good habit.

Duchess of Portland.—A sport from *Empress of India*, in habit and size of flower identical with that variety; blush salmon, deeper in the upper petals; very striking and effective.

Eventide.—Pale rosy cerise, dark maroon blotch on upper petals, white throat; a beautiful flower.

Joseph Leigh.—Clear rosy pink, large dark maroon blotch on upper petals; dwarf and free.

Prince George.—Attractive; crimped flowers of soft salmon-pink, lower petals marked with a small blotch of orange-maroon, upper petals blotched blackish maroon; enormous trusses.

Purple Emperor.—Fine bold open flowers, and forming into large trusses, upper petals feathered and blotched maroon; distinct.

Sultana.—Rich red, enlivened with chestnut, upper petals of a much richer shade and feathered maroon, pure white centre, the whole flower margined pure white.

Venus.—The earliest of all white-flowering varieties.

Hamlet et Ophelia.—Light satiny mauve, of a deeper colour in upper petals, and blotched deep crimson-maroon; flowers very large and of good shape.

Emperor of Russia.—Dark maroon-crimson, elegantly marked with a white belt; very distinct.



Decorative Pelargoniums, Duke of Cornwall.

Old-time Gardening.

(Continued from page 159.)

The rise of botany may be said to have occurred in the seventeenth century. Dr. Turner at Sion, and Gerard at Holborn, each did a little in making a start, and it is to L'Obel the honour belongs of the first attempt at a scientific classification of plants. But progress was barred by a lack of knowledge of the functions of plant life. The parts played by leaf and sap were unknown, and the relationship of the reproductive organs, or, indeed, their very existence, was unrecognised.

As often as not a male plant was called female, as in the case of Hemp, the "carle-hemp" being preserved for seed purposes, and the "female" as being barren for spinning. Utilitarianism was, indeed, largely the be-all of the early botanist, and if a plant possessed no physical or beneficial properties it was considered as somewhat of a lapse of Nature, and fit only to adorn a gentlewoman's bed of nose-gay flowers. Classification, therefore, resolved itself into such plants as were useful for food, poisonous, or for physic. About the middle of the century Dr. Nehemiah Grew published a book dealing with plant physiology, and by the end very remarkable progress had been made.

RISE OF BOTANY AND BOTANIC GARDENS.

As botanists, Bobart, of Oxford, in conjunction with Morrison, professor of botany there, may be here mentioned; but it is perhaps to Ray that the men of that period were most indebted. Ray was very painstaking, and in his researches into the Flora of England, the first work upon which he published, he travelled over all the country, extending his journeys into Scotland. He, moreover, had correspondents who aided him with specimens of plants and notes. Ray's classification was exceedingly complicated, though sometimes being very near the natural, while at others as widely apart; as, for instance, where Hops, Glasswort, Hemp, Mercury, Nettles, Burs, Docks, Buckwheat, Potamogeton, Sueda, Beet, Pellitory, Golden Saxifrage, Ladies' Mantle, and Rupture Wort are all included in one because the flowers are "imperfect," or sometimes "without petals." Tournefort's classification, though complicated too, was in many respects less so than that of Ray, and became the recognised system for a very long period, even long after that of Linnæus had been generally accepted.

The first botanic gardens were founded in England during this century, though there were not a few private gardens in which collections of plants were gathered together and cultivated, but it was to private persons that the nucleus of public collections was due. For a very long time the name botanic was not applied, but they were called physic gardens, the very reason of their existence apparently being founded on the all-absorbing belief that the vegetable world comprehended to a very large extent the chief source of medicines.

Another matter connected with these early public gardens was their restricted dimensions. Three to five acres of ground was thought space sufficient to include the whole world of vegetables then worth gathering together. Oxford claims the honour of possessing the first of these establishments, it having been founded in 1632 by the munificence of Henry Danvers, Earl of Danby, who also endowed it with an annual revenue. In extent it was five acres, and was enclosed by walls 14ft high of hewn stone. The gate to this garden was said to have cost £500 or £600. Bobart, a Dutchman, was the first curator, and he was responsible for the introduction of many new plants from his native country.

On holidays, Bobart (who spelled his name Bobert, though the former is the recognised mode) used to dress his large flowing beard with silver tags. He was succeeded by his son, Jacob Bobart, of whom we catch many glimpses as a botanist and florist. On the death of Morrison in 1683 he continued, and brought to a conclusion, that botanist's history of plants. In 1673 the celebrated Physic Garden at Chelsea was founded by the Apothecaries' Company. It was not enclosed by a wall till later, and seems to have been established and furnished by the liberality of members of the Apothecaries' Company. It extended to not much more than three acres.

In 1676 a collection of medicinal plants was purchased from a Mrs. Gape, of Westminster. The first curator was named Piggott, and he was followed by Watts in 1680, an apothecary; he received a salary of £50 a year, but he does not appear to have been successful as a gardener, as the

plants seem to have been neglected under his rule. In 1722 Philip Miller became curator, and during his lengthy reign the gardens attained a world-wide fame. Sir Hans Sloane gave the Apothecaries a lease in perpetuity of the gardens on payment of £5 per annum.

In Scotland the present Royal Botanic Gardens had their inception through the enlightened physician, Sir Andrew Balfour, one of the greatest benefactors of the gude town of Edinburgh. He settled in Edinburgh in the year 1670, where, adjoining his house, he established a small botanic garden, and furnished it with plants, the produce of seeds received from his many correspondents on the Continent, where he had spent several years studying botany, medicine, and men. Balfour was an original investigator, and to him the scientists of his day were indebted for, among other results, the exposure of the Barnacle goose wonder. He discovered many hitherto unrecorded wild plants, and possessed moreover the power of instilling some of his own enthusiasm into the minds of his students. One of these, Lord Livingston, was devotedly attached to the pursuits of natural history, and formed at Livingston a botanic garden which contained a thousand species of plants.

In pursuit of his favourite study, Lord Livingston travelled all over France gathering plants; thence he went to Italy, but on the way he was attacked by a fever that terminated fatally. Balfour subsequently secured the collection of plants, and, transporting them to Edinburgh, added his own small collection to it. The expenses incurred were defrayed by himself and Sir Robert Sibbald, an eminent naturalist belonging to Fife, aided by the Faculty of Advocates. The garden was established on a small plot of ground near Holyrood; but shortly afterwards the municipal authorities allotted a piece of ground almost exactly on the spot where the east coast trains now start for London. The salary of the curator, who called himself the intendant, was also defrayed by the city.

James Sutherland was the first curator, and he published an interesting catalogue of the plants cultivated in the gardens in 1683-4. Balfour, however, was the means of adding considerably to the number of plants. His friend, Morrison, of Oxford, under whom he had studied on the Continent; Watts, of Chelsea Botanic Gardens, and foreign correspondents, including one in Tangiers who sent African plants, all contributed plants and seeds.

Dr. Alston, professor of botany, published in 1740 a catalogue of medicinal plants cultivated at that date, which is not a very lengthy one; but the Edinburgh Botanic Garden exerted a powerful influence on the gardening of Scotland for some 150 years after its institution, collections of hardy plants being a feature in most of the gardens in that country, and, indeed, a knowledge, intimate and extensive, of these was essential to a gardener. In 1767 Hope, the then professor of botany, secured five acres of ground in a better position near Leith Walk, and here until 1821 the Botanic Garden was situated, when a removal was made to its present site in Inverleith Row.—B.

Small Parks and Fires

The recent most disastrous fire which devastated the City of Baltimore, Md., serves to illustrate one of the large public services that may be performed by small parks. In urging the establishment of these open areas in the more crowded part of a city the larger claim naturally lies with the broader questions of public health as it is related to freedom of air and sunlight for the residents of the district. Stress is usually laid upon the better physical and moral conditions of the near-by population, for it is no longer a question of theory that better living conditions make for better civic health as well as for better manhood. The Baltimore fire could never have been so destructive if only there had been open spaces where the danger of the spread of the fire was lessened, and where the fire fighters could make a firm and concentrated stand. An abundance of small parks scattered through the city would serve the end at the same time as they added to the general good of the daily living conditions. There is, indeed, very good reason to urge the making of small parks solely as a means of counteracting the dangers of a huge conflagration. In some of the cities of the old world this aspect of the small park question is kept well to the front; and to cite one city as an instance—London, with its more than seventeen thousand acres of park land, is still planning to increase this area by the acquisition of lands that may be made into "small parks." If the Monument City had had an abundance of open areas in its business section the sad story of last Sunday would never have been told.—("American Gardening.")



Notes on Apples.

The concluding words, "If so, well and good," of "S. P., Wilts," on page 237, suggest some dire alternative. I may feel some alarm in wondering what that alternative may be, or in what form it will be presented; but this is not the place for a confession as to the state of one's feelings. In penning the "Notes on Apples" I had not thought of including all the widely known and widely grown varieties such as are those about which he is pleased to question me. I had, however, hoped to have returned to the subject before this, when I should doubtless have had something to say upon one at least of them. But time has a cruel way of cutting short one's projects, and "Notes on Apples," so far as I am concerned, must be left for a more convenient season. Speaking roughly, little but praise can be accorded the varieties enumerated by "S. P., Wilts," and nearly, if not quite, all I should place very high in a list of culinary sorts. With this I trust he may be satisfied. How he may express himself when he discovers that to the best of my recollection I have never previously mentioned any of those varieties in these pages is a matter for fearful speculation on the part of—PROVINCIAL.

Why are Trees Deciduous?

How often has the gardener asked himself, What is the cause for one species of a genus being an annual and another a biennial or perennial? Few gardeners but must have at some time or other noticed the paucity of evergreen trees or shrubs indigenous to our islands, and the abundance which clothe the landscape of warmer climates. Such an observation, we think, would naturally lead to the question, Why is it so? Many persons very wisely and sagely say that the trees and shrubs were thus created, and consequently must always remain and reproduce themselves so. Charles Darwin and other eminent naturalists have very considerably modified views such as these, and showed that a rigid permanency in vegetable or animal forms is incompatible with the laws of Nature and what we know respecting them.

Here, then, is the first link of the chain of special creation broken, and an opportunity extended for the inquiry of such questions as the above in the most feasible direction. By a process of analogy the most likely conclusion one will arrive at in the attempt to solve the difficulty is that the cause, partly or wholly, is dependent upon climate. That this is a sound premise there appears to be little doubt; for if we take our own kingdom we find, excepting the Coniferæ and a very few shrubs, that all cast their leaves and are in consequence deciduous. We can also see that this process is brought about by the withdrawal of the sun's heat, and consequently accelerated by the increasing cold which naturally supervenes. Doubtless this will have been apparent in the experience of all who have given any consideration at all to the process of defoliation. The fact that tropical and sub-tropical countries furnish examples where the deciduous process is almost, if not entirely, unknown, is also sound reason for supposing the cause to be altogether due to the absence of the chilling conditions so conspicuous in temperate and Arctic zones.

In the British Isles at one time (comparatively recent, from the geologist's standpoint) our trees, too, were largely, if not entirely, evergreen. It is evident this was very much the case during the several periods of the carbonaceous formations—a state of matters which seems to have existed up to the Miocene Age. Naturalists are at one on the point that the flora of those periods was of a highly tropical nature. They also seem to generally concur in the devastating periods which subsequently visited our islands—namely, the Glacial or Ice Age, and say that European flora, on account of the changed conditions, has been, down through all the countless years to the present, adapting itself to the altered conditions. They assert that those changes from tropical were gradual and steadily increasing in coldness until they culminated in the greater part of Europe being encased in ice. There is little doubt but that many plants and animals were lost for ever in this devastating catastrophe; but it will be borne in mind that the almost insensible nature of the change would necessarily require many thousands of years ere it would culminate in an ice-bound land. Therefore, as the cold increased, probably many plants which now survive would be gradually forced southward before the ice deluge, and in the great struggle for existence great modifications in their original characters would ensue. One very important modification was

the autumnal fall of the leaf. Thus, then, we have in the very commonplace fall of the leaf a lasting monument of the long, long winter of the Glacial period.—D. C.

Forced Nettle-tops.

There seems to be a use for everything nowadays, says the "Globe." We read that the common Nettle in its early stages of growth is much valued in London as a vegetable, and that when well cooked it tastes much the same as Spinach. Nor is this all. It is said to be highly beneficial to those who are troubled with gout. We confess to being a little sceptical on this last point. "It would be an exceedingly pleasant thing for everybody if the remedy for gout were so simple and cheap, but we fear that a man must do more than eat young Nettles if he wishes to rid himself of the disease." The "Globe" evidently does not know that tender Nettle tops were for long esteemed a delicacy in days gone by.—B. N.

Measurements of Cedar Trees.

Noticing the measurements of the Bretby Cedar given in the *Journal* of last week, I have measured ten Cedars of Lebanon on this place, the Hertfordshire residence of Mr. J. V. Gilliat, and find seven of them, at 4ft from the ground, measure as follows:—1, 25ft 9in in circumference; 2, 23ft; 3, 23ft; 4, 20ft; 5, 19ft 6in; 6, 19ft; 7, 16ft. The Cedar of Lebanon grows well on this soil. One planted in 1887 (to commemorate the late Queen's Victoria's Jubilee), 7ft high, obtained from Messrs. Veitch and Sons, of Chelsea, is now 30ft in height. I should be glad to hear of measurements of other good Cedars of Lebanon from any correspondent through the *Journal of Horticulture*. We have recently tried to buy Cedars of good height, but cannot get them.—W. WATERMAN, Chorleywood Cedars, Rickmansworth.

Seed Sowing.

If the germinating power of the seeds already sown under glass is to serve any useful purpose as a guide to those sown in the open ground, very great care will be required. I find that such seeds as French Beans, Onions, Carrots, and even Radishes require more bottom heat than usual at this time of year to cause an even growth. This is attributable, I presume, to the bad harvest of last year. I also find that both culinary and Sweet Peas are not arising so thickly as one would like to see (I refer to those sown in pots).

If this is general experience with pot and frame-grown seeds, a little more seed will be required in the open, as any seeds with weak germs will almost surely fail when placed in the cold, wet soil. At present the soil is drying very slowly indeed, and it is also a little colder than usual at this time of year. However, against these defects we are just now getting frosts each morning ranging from 4deg to 10deg, which will help to pulverise the soil and make it work finely. I think that we should defer the sowing of certain choice Marrowfat Peas for a few days later than has been our practice, and to make up for the time lost in gathering an extra row or two of such kinds as Chelsea Gem, William Hurst and the American varieties should be at once sown.—T. ARNOLD.

Curious Scottish Plant Names.

Following our report on this subject in the issue for March 3, we print this note from the Edinburgh "Evening News":—"Scottish Plant Names" was the title of a very interesting lecture delivered by Mr. R. P. Brotherston, Tynninghame Gardens, at a meeting of the Scottish Horticultural Society in Dowell's Rooms, Edinburgh. Quite a number of the names, he said, were old English, some were Anglo-Saxon, as "docken"; others were from the French, as "apple-ringie"; some Scandinavian, as "badderloch"; others again were Latin, as "necps." The "gean" was, he said, better French than Scots; "lilyoak" was a pretty misrendering of Lilæ; "grozers" was seemingly a French word, but Mr. Brotherston said that the word "rizzers"—the Border name for Red Currants—probably a corrupted form of "Raisins," was good Scots. Though "Kale" was as much English as Scottish, time and continued usage had given it a distinctly Scottish flavour. The name was derived from *caulis*, a stalk, the midrib of the leaf having formerly been eaten. The curious custom of women carrying a spray of "apple-ringie" or balm to church was a survival of the mediæval practice of carrying aromatic plants as a protection against plague, and the habit had lingered long after the reason for it had been forgotten. "Flourish," as applied to fruit blossom, was peculiarly Scottish. Some names regarded as Scots were really examples of mispronunciation.

Life of John Abercrombie.

John Abercrombie, the author of the book, "Every Man His Own Gardener," was born at Edinburgh in 1726, near which city his father conducted a considerable market garden. From his infancy he was employed to assist in this undertaking, which was one particularly suited to his taste. At fourteen he became an apprentice of his father. He was thoroughly grounded in his profession, the practice of years being retained and concentrated by a habit we commend to all young gardeners of committing to paper the observations he made in its pursuit from a very early age. Soon after his apprenticeship expired, being about eighteen, upon a domestic misunderstanding he came to London, where he obtained employment in some of the Royal Gardens, at Kew, and at Leicester House. Afterwards he became gardener to Dr. Munro and other gentlemen. About 1751-2 he became gardener to Sir James Douglas, during his continuance in whose service he married. Fearing his family might become troublesome he left his situation in 1759 and returned to Scotland with the intention of becoming kitchen and market gardener, but came again to England after an absence of only ten months. He was engaged in the service of several noblemen and gentlemen until 1770, when he engaged a kitchen garden and small nursery ground between Mile End Road and Hackney, attending Spitalfields Market with the products until 1771-2. At this period he became a publican in Dog Row, Mile End. His house was afterwards converted into the Artichoke Tea Gardens. By the importunity of his wife he left this and entered into the seed and nursery business at Newington and Tottenham Court, carrying on at the same time an extensive trade as a kitchen gardener and florist. The taste he displayed in arranging and the skill in cultivating gardens induced a recommendation to publish on those subjects; but it was long before his diffidence would allow him to make an attempt. Afterwards becoming more confident Abercrombie published his "Gardener's Pocket Journal, or Daily Assistant," which obtained a very extensive sale and has since passed through many editions. Besides these he compiled many other books.

He died from an accident on the 2nd of May, 1806. He at one period after the publication of his "Every Man His Own Gardener," had actually embarked to superintend the Gardens of the Empress of Russia, but the sight of the ocean inspired him with terrors which he could not overcome.

Societies.

United Horticultural Benefit and Provident.

REPORT OF THE COMMITTEE FOR 1903.

The annual meeting was held on March 14, when this report was submitted:—It is with the pleasure that results from continued success, and the knowledge that the society is now filling that place in the horticultural world for which it was created thirty-nine years ago, that the committee brings forward its report for the year 1903. Both financially and numerically the society continues to progress steadily.

It is interesting to notice that while some fewer new members were elected than in 1902, the number was eighty-three, precisely the same as in the years 1899, 1900, and 1901. Five members died during the year, twenty-seven lapsed from various causes, and one, having passed the age limit was, at his own request, paid out. This leaves a nett gain of fifty for the year, and brings the total membership to 1016.

The society also shows sound financial progress, the amount invested during the year being £1,800, making a total of £22,018 12s. 7d. now in trust for the members. Sick pay for the year amounted to £303 5s., a slight increase on the payments under that head in the previous year, but yet showing a decrease in the sum chargeable per head, this being 7s. 2d. and 4s. 10d. as compared with the 7s. 5d. and 4s. 11d. of 1902. The Benevolent Fund has rendered assistance to the extent of £129 2s. 6d. Of this amount, members over 70 years of age (three) received £61 8s., and members transferred from the Sick Fund (six) received £53 15s., all in weekly allowances. In addition, special grants varying from 19s. 6d. to £5 were made to five members, the total amount being £13 19s. 6d. The Convalescent Fund has only been drawn on to the extent of £4 10s., and the Committee feels that the Sick and Benevolent Funds might often be relieved somewhat if members recovering from an illness took advantage of this fund before resuming their employment.

On the recommendation of the treasurer, the trustees sold the £1,000 South Indian Railway Capital Stock, and with the proceeds thereof £1,200 of Liverpool Three Per Cent. Stock was purchased. This transfer, effected because of the prospect of early redemption of the stock, was made with advantage to the society.

The committee would especially draw attention to the fact that lapsed members do not forfeit any amounts standing to their credit in the society's books. This should not be lost sight of

when young gardeners are being induced to join the society. The total amount standing to the credit of lapsed members is £1,564 13s. 8d., which, by the way, earns interest for the benefit members. The largest amount credited to a lapsed member is just over £65 and the lowest is 1s.; forty-four have over £10; sixty-five have over £5 and less than £10; and 221 have amounts less than £5. All these sums can be claimed when the lapsed member reaches the age of 60, and, in the case of earlier death, by his nominee. Lapsed members having £5 to their credit may be regarded as having belonged to the society for about five years; while those with from £5 to £10 to their accounts have an average membership of seven and a half years.

During the year the committee has had under consideration the revision of the rules of the society, but the business at the usual monthly meetings has so increased, that little time was left for this special work. Now, however, the committee has resolved itself into a Rules Sub-Committee, and as such it sits one evening a month to discuss the rules. The committee hopes to be able to place the suggested alterations before a special general meeting of members, to be held on the same date as the next annual meeting.

The committee wishes to tender its best thanks to the honorary members, and especially to Mr. Peter Barr, V.H.M., who so ably presided at the largely-attended annual dinner, held at the Holborn Restaurant on October 10th. The nurserymen and seedsmen who have been good enough to publish the title and objects of the society, together with the secretary's name and address, are also warmly thanked for the services thus rendered. At the same time, the committee wishes to express its high appreciation of the many services ably and cheerfully rendered the society by the horticultural Press.

In conclusion, with so much progress to record, the committee confidently looks forward to a further increase of membership, and in this connection urges all members and friends to do their utmost to induce the young gardeners of the United Kingdom to join "The United," as the society is now popularly designated.—Signed on behalf of the committee, CHARLES H. CURTIS, chairman, WM. COLLINS, Secretary.

We publish only the general statement of liabilities and assets:—

LIABILITIES.			
1904. January, 11th	£	s.	d.
To Benevolent Fund..	4,017	4	0
„ Convalescent Fund ..	501	15	11
„ Management Fund ..	72	4	2
„ Benefit Fund ..	17,427	8	6
	22,018	12	7

Examined and found correct, as per Bankers' Pass Book.
March 9, 1904.

ASSETS.			
1904. January 11th	£	s.	d.
By Investments			
as per last			
year ..	20,100	0	0
L ss—South			
Indian			
Stock sold	1,000	0	0
	19,400	0	0
„ Liverpool			
Corpora-			
tion 3 per			
cent. Stock	2,700	0	0
„ Devonport			
Corpora-			
tion 3 per			
cent. Stock	300	0	0
			22,400 0 0
„ Cash on De-			
posit at			
Bank (on			
call) ..	200	0	0
„ Cash in hand			
of Treasur-			
er ..	128	17	4
„ Cash in			
hand of			
Secretary	20	10	6
			349 7 10
			£22,749 7 10

W. GUNNER, F.S.A.A. } Auditors.
T. H. PUZEY, F.S.A.A. }

The Secretary's address is 9, Martindale Road, Balham, S.W., and that officer will be pleased to forward information to all who inquire.

Chester Paxton.

The closing meeting for the present session was held in the Grosvenor Museum on Saturday, when a paper, entitled "The Value of Education and Science to Those Employed in Horticultural Pursuits," contributed by Mr. W. White, late of Bolesworth, and now of London, was read by the secretary, Mr. G. P. Miln. The subject was dealt with in a very comprehensive manner, the writer laying special emphasis on the desirability of horticulturists acquiring a better and more complete knowledge of those sciences bearing directly upon their profession. Much useful information and sound advice was imparted, followed by an interesting discussion, in which Mr. A. W. Armstrong, who presided, Mr. Naylor, Mr. John Weaver, and Mr. Wakefield took part, and the meeting closed with a hearty vote of thanks to Mr. White for his able contribution. The secretary announced that it was proposed to hold an exhibition of spring flowers in the Grosvenor Museum on or about April 13 and 14, provided that spring flowers would be sufficiently advanced by these dates.

Newport :—Gardeners' Friends.

The usual meeting of the Newport (Mon.) Gardeners' Mutual Improvement Association was held on Wednesday, March 9, when a good attendance of the members, presided over by Mr. J. Duff, thoroughly enjoyed a most interesting, instructive, and humorous lecture by Mr. E. C. Reeves, of Crindan Schools, the subject being "Gardeners' Friends." Mr. Reeves is an enthusiastic student of birds and insects, and is well qualified to deal with his subject in a masterly manner. He gave a very lucid description of the various birds, insects, &c., which prey upon and destroy those insects which are hurtful to the vegetable kingdom. The birds mentioned as being especially useful were the spotted flycatcher, the grey water wagtail, swallow, swift, martin, cuckoo, and blue tit, these living wholly upon insects; the starling, rook, thrush, and blackbird destroying great numbers of wireworms, snails, &c., although doing some damage to the fruit crops.

Amongst the insect tribe that are useful in destroying other insects that are harmful are the tiger beetle, which is one of the most beautiful, as well as one of the fiercest, being a veritable tiger in the insect world, although only about half an inch in length; the ladybirds, which feed upon green fly; and the larvæ of the glow-worm, which feeds upon tiny snails. The rove or devil's coach horse is another beetle most useful. The ichneumon fly was specially mentioned, laying its eggs in the bodies of other insects. Bats, moles, hedgehogs, frogs, and toads were also insect destroyers. A very animated discussion followed, in which the chairman, Messrs. Harris, Jarvis, Basham, Powell, Jones, Woodward, and others took part. A very hearty vote of thanks was accorded Mr. Reeves for his able lecture. Mr. W. Jones, gardener to R. Williams, Esq., was awarded the society's certificate of merit for six well grown Primulas, some of them being 2ft 3in in diameter.

Liverpool :—Troublesome Pests.

On Saturday evening, the 12th inst., a lecture was delivered before a large attendance of members of the Liverpool Horticultural Association, entitled "Troublesome Pests," by Mr. Sherry, Botanic Gardens, Liverpool, who confined his remarks to the pests gardeners have to deal with under glass. He gave the life-history of some of the principal "insects," such as the beetles, thrips, red spiders, mealy bugs, and scales, giving the audience

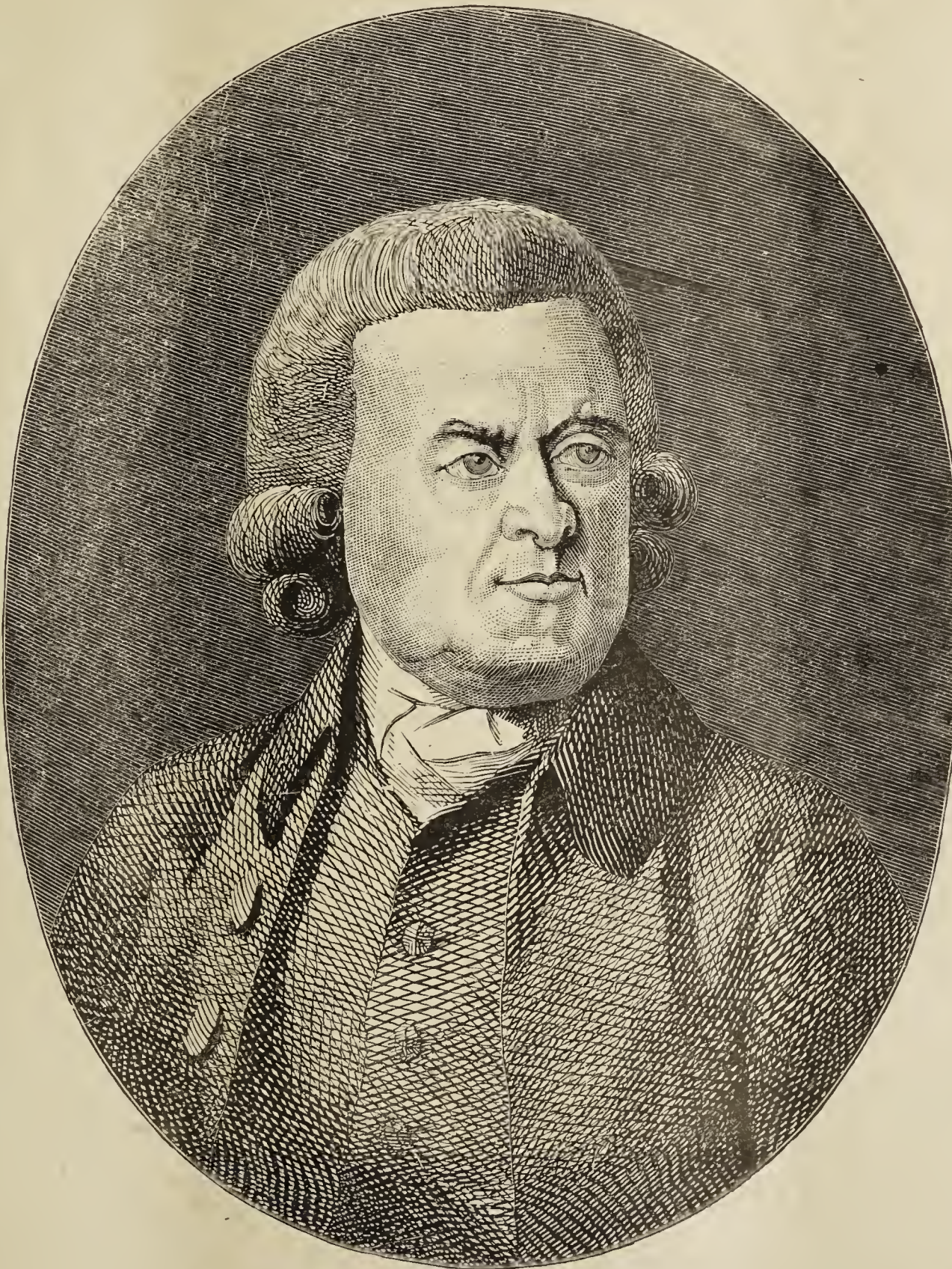
a full description of their structure, habitat, mode of living, and sexual reproduction, and suggested those remedies for trapping and killing the "insects," which he had personally found to be most successful. The universal phosphorus paste he recommended for destroying beetles, its luminosity attracting the insects, who succumb to the temptation to eat. They eat, and they die. Mr. Sherry remarked that traps of any description, unless kept scrupulously clean, were useless. For thrips, the sponge and "paraffin softsoap" solution (now used extensively) he advocated for their extermination, in conjunction with two or more successive fumigations, and plenty of moisture about

the house. Red spider is also destroyed by similar methods. Dipping he had found to be useless, but sponging with the softsoap solution was considered to be a preventive, avoiding at all times a dry atmosphere. Mealy bug, that most troublesome of all pests, Mr. Sherry successfully eradicates by fumigation with XL All vapourising compound. Scales must be prevented from laying their eggs by repeated sponging, syringing, &c. In conclusion, the lecturer entreated all present, who had not already done so, to make a study of insect life, and to grasp the fact that the more we know of them and their habits, the better shall we be able to destroy them, and be solving the problem of how to get rid of them. A hearty vote of thanks was accorded to Mr. Sherry for his amusing, instructive, and most interesting lecture.—J. S.

Ware Horticultural.

The fortnightly meeting of this society was held in the Vicar's Room, when there was a good attendance, presided over by Mr. J. Spencer. Three new members were elected. Mr. W. Durrant, second gardener at Ware Priory, read a very interesting and practical paper on

"The Culture of Gloxinias." He dealt with the introduction of the Gloxinia, seed-sowing and cultivation in the various stages, propagation by cuttings and leaves, the ripening of the tubers and restarting, and the various insects that attack the plants and the best way of destroying them. A good discussion followed, taken part in by several of the members. Mr. Durrant was accorded a hearty vote of thanks, the chairman hoping he would be able to give them some more interesting papers. The judges for the ordinary competition were Mr. G. Gilbert and Mr. W. Porter. The exhibits from the following members were excellent:—Mr. Noyce, Primulas and Cinerarias, Narcissus Emperor and Poeticus Ornatus; Mr. Fulford, Dendrobium nobile and Hyacinths; Mr. Godfrey, Freesias and Seakale; Mr. Clibbon,



[1726—John Abercrombie—1806.]

Hyacinths and Borecole; Mr. Knight, *Arancaria excelsa*; Mr. Purver *Cyclamens*, Mr. Gumbrell, *Hyacinths*, *Tulips*, and *Cineraria stellata*; Mr. J. Spencer, *Cineraria blooms* and *Rhubarb*. The secretary read a letter from the Rev. W. Wilks, secretary to the Royal Horticultural Society, heartily thanking the members for their liberal donation of eight guineas towards the new hall of the Royal Horticultural Society. The secretary wishes to thank all the members and friends who so kindly enabled him to make this donation such a success. The usual vote of thanks was accorded the judges, exhibitors and chairman.

Royal Horticultural, Drill Hall, March 22nd.

Orchids were again numerous on Tuesday last at the meeting in the Drill Hall, Westminster. Mr. W. A. Bilney had a magnificent collection of *Dendrobiums*, and Mr. N. C. Cookson staged choice *Odontoglossums*, and both gentlemen received gold medals. Violets, Primroses, Roses, Daffodils, forced shrubs, *Cyclamens*, and *Rhododendrons* were among the principal subjects. Messrs. Dobbie and Co. had a remarkable collection of Potatoes again on show, and from a private garden there came a beautiful exhibit of *Acacia cultriformis*, decorating a dinner table. This plant lends itself splendidly for this purpose. Professor G. Henslow delivered a lecture on "The Heredity of Acquired Characters."

Fruit and Vegetable Committee.

Present: Mr. Geo. Bunyard (in the chair); with Messrs. S. Mortimer, A. Dean, Horace J. Wright, E. Beckett, Geo. Kelf, P. M. Veitch, Hy. Parr, G. Reynolds, J. Jaques, F. Q. Lane, G. Wythes, A. H. Pearson, and Owen Thomas.

Messrs. Dobbie and Co., of Rothsay, made a fine display of Potatoes, exhibited in baskets. All the most popular varieties were displayed, *Sir Walter Raleigh*, *The Factor*, *Ninetyfold*, *King Edward VII.*, *Dobbie's Favourite*, *Northern Star* (the best basket we have seen of it), *The Crofter*, *Sir John Llewlyn*, *Evergood*, and *British Queen* were the most prominent. (Silver Knightian Medal.)

Narcissus Committee.

Present: Mr. H. B. May (in the chair); with Messrs. Chas. H. Curtis, W. M. Copeland, P. Rudolph Barr, John Pope, E. A. Bowles, Geo. Engleheart, A. Kingsmill, James Walker, and W. Poupart.

The business transacted pertained purely to the committee itself, and no new varieties were certificate. Medals, however, were accorded to Lady Tate and Messrs. Barr and Sons, for groups.

Narcissi and alpine plants were largely contributed by Messrs. Barr and Sons, Covent Garden. In the former were noted vases of *Victoria*, *M. J. Berkeley*, *Golden Spur*, *Princess Ida*, *Madame de Graaff*, *Sir Watkin*, and *Henry Irving*. Boxes of alpine plants included *Iris* in variety, *Primulas*, *Anemones*, and *Chionodoxas*. (Silver Banksian Medal.)

A fine collection of *Tulips* and *Daffodils* were staged by Lady Tate (gr., Mr. W. Howe), which made a good display. Among the *Tulips* were noted *Pride of Haarlem*, *Grace Darling*, *Keizerskroon*, *Unique*, and *Duchesse de Parma*. The *Narcissi* were beautifully developed, and a few of the best were *Victoria*, *Glory of Leiden*, *Sir Watkin*, and *Horsfieldi*. (Silver Flora Medal.)

Orchid Committee.

Present: Messrs. J. Gurney Fowler, James O'Brien, J. Wilson Potter, F. Sander, H. A. Tracy, H. G. Morris, W. H. Young, J. W. Odell, W. Boxall, H. J. Chapman, M. Gleeson, F. W. Ashton, A. A. McBean, J. Charlesworth, H. T. Pitt, W. A. Bilney, F. A. Rehder, Jeremiah Colman, F. Wellesley, Walter Cobb, H. Ballantine, Norman C. Cookson, de B. Crawshay, and H. Little.

Messrs. Charlesworth and Co., Bradford, had *Laelio-cattleya* x *Myra*, *Laelia* x *Briseis*, with recurved, radiating segments. Parentage: *L. harpophylla* and *L. purpurata*. *L.-c* x *Wellsiana*, with its beautiful velvety purple lip, was shown. *Sir Trevor Lawrence*, Bart., staged *Masdevallia ignea*, *Burford* var., and others: also *Dendrobium* x *Myra* (*D. Linawianum* x *signatum*), a pretty tea-yellow hybrid with dark throat. *D. Clio giganteum* was also staged.

Messrs. J. Veitch and Sons, Ltd., Chelsea, had a group including *Dendrobium* x *Wiganianum*, *Laelia* x *Mrs. M. Gratrix*, *L.-c.* x *Myra*, *L. x Latona*, *Laelia Digbyano-purpurata*, *L. e. Antimachus* var. *carnea* (*L.-c.* *Dominiana* x *C. Warszewiczii*), and others.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, staged remarkably well flowered *Dendrobium Wardianum* plants of the *Lowi* variety, the flowers here being larger and brighter in effect than those of the type. *D. erassinode* was also shown.

W. A. Bilney, Esq., The Grange, Weybridge, filled one half of a central table with *Dendrobiums*, remarkable for their floriferousness. The group included *D. nobile nobiliss*, with long, stout pseudo-bulbs, bearing so many as 175 flowers; *D. Ainsworthii*, *D. Wardianum*, *D. n. Amesiae*, *D. Pallens*, *D. fimbriatum*,

and *D. densiflorum*; also *D. n. Ballianum*, *D. Cybele giganteum*, *D. Findleyanum*, *D. Ainsworthii* *Gwendolen*, *D. chrysotoxum*, and *D. nobile virginalis*.

Another choice but much smaller collection came from Northumberland, from N. C. Cookson, Esq. (gr., Mr. H. J. Chapman), Oakwood, Wylam, who had the following *Odontoglossums*:—*Crispum Lueianiae*, *Wilekianum*, *loehristyense* *Cooksoniae*, *crispum Sibil* (A.M.), *ardentissimum* *Cooksoniae* (F.C.C.), *crispum Mariae*, *Rolfae* *Oakwood* variety, and *O. crispum tessellatum*.

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. H. B. May, Chas. T. Drury, R. Dean, John Green, John Jennings, Wm. Howe, Charles Dixon, C. J. Salter, Chas. Jefferies, Geo. Gordon, H. J. Cutbush, Robt. W. Wallace, Wm. Cutbertson, Charles E. Shea, W. P. Thomson, E. H. Jenkins, Geo. Paul, E. T. Cook, Charles Blick, and H. J. Jones.

Messrs. W. Cutbush and Son, Highgate, displayed *Iris Haynei*, *Shortia galacifolia*, *Tulip Le Rêve*, and *Hepatieas*; also *Rhododendrons*, *Azalea mollis*, *Prunus triloba rosea*, and *Spiraea arguta*, with large plants of *Forsythias*. The same firm also contributed a grand display of forced flowering shrubs. The standard specimens of *Viburnum plicatum*, *Lilacs*, *Wistarias*, *Ribes* in variety, and *Lilacs* were charming.

From Messrs. W. Paul and Son, Waltham Cross, came one of their annual displays of *Camellias*, both in pots and as cut flowers. The plants were the picture of health, while each plant carried an enormous quantity of bloom. A few of the best were *Boadicea*, *Alba Plena*, *Imbricata*, *Madonna*, and *Conspicua*. The cut flowers included *Montironi vera*, *Mathotiana*, *Marchioness of Exeter*, *L'Avenir*, and *Mars*. The interest taken in this exhibit was remarkable, and it received the highest medal given by the committee last Tuesday.

A group of forced flowering shrubs came from Mr. J. Russell, Richmond, the *Wistarias* being especially good, while *Clematises*, *Azalea indiea* in variety, and *Lilacs* made up the chief features of the flowering subjects.

Messrs. B. S. Williams and Son, Upper Holloway, also exhibited a large group of *Palms* and forced flowering shrubs. The *Lilacs* and *Azalea mollis* were the finest features, the former being displayed as standard and bush plants. *Aralias*, *Palms*, and other foliage plants were utilised as ground plants with a pleasing effect; also a table of *Tulips* and *Narcissi* in variety.

Messrs. R. and G. Cutbert, Southgate, contributed the finest display of forced flowering shrubs. The group was beautifully arranged, while the development of the plants could hardly be excelled. The *Lilacs* included *Marie Legraye*, *Souvenir de Louis Spathe*, and *Charles X.* *Viburnum Opulus*, *Azaleas* of the *mollis* type, *Ribes*, and *Wistarias* were also produced in first-rate style.

The Misses Hopkins, Mere, Knutsford, made a small but pleasing display of *Primroses*, which included many of the scarce and rare varieties. The old gold-laced *Polyanthus*, *Lancashire Hero*, was in capital form.

Messrs. T. Cripps and Son, Tunbridge Wells, made a pleasing display of *Japanese Maples*, which proved quite a relief to the rest of the exhibits. The plants were well grown, of nice colour, and staged in great variety.

Messrs. H. Cannell and Sons, Swanley, exhibited a semi-circular group of *Cineraria stellata*, in which section they are undoubtedly making good strides, especially in developing the colours of the flowers.

Messrs. T. S. Ware, Ltd., Feltham, had an exhibit of hardy flowers and *Narcissi*. The *Primulas* were a strong feature. *Dielytra spectabilis* and a few *Mountan Paeonies* were also well grown. *Iris Suziana* was much admired, while pans of *Primroses*, *Aubrietias*, and *Saxifragas* formed the most noteworthy features. Mr. W. C. Modral, The Gardens, Biggleswade, exhibited a small group of *Primula Forbesi* in small pots. The plants were a mass of rosy pink flowers.

Mr. H. B. May, Dyson's Lane Nursery, Upper Edmonton, made an interesting display of *Clematises* staged in groups. A few of the best were *Edith Jaekman*, *Miss Crawshay*, *Nellie Moser*, *Mrs. Quilter*, *Lord Wolseley*, and *Albert Victor*.

Messrs. Jas. Veitch and Sons, Ltd., Chelsea, staged a fine table of *Rhododendrons* and *Hydrangeas*. The former included the fine white *R. Veitchii*, *R. Ne Plus Ultra*, a fine hybrid. Cut blooms of *Camellia reticulata* and plants of *Hydrangea Hortensia*, whose flowers represented the best China blue in colour possible to be seen. It would be interesting to know the exact dose of sulphide applied to produce such colouring. A few plants of *Corylopsis pauciflora*, with its pale primrose flowers, made a pleasing contrast.

Cut *Roses* were staged by Mr. George Mount, Canterbury, in his well-known style. The flowers and foliage left little to be desired. The best varieties were *Mrs. S. Crawford*, *Mrs. J. Laing*, *Mrs. W. J. Grant*, *Souvenir de Pierre Notting*, *La France*, *Captain Hayward*, and *Ulrich Brunner*. Mrs. Dennison (gr., Mr. A. A. Gentle) arrayed a floral table with *Acacia cultriformis* and a little suitable foliage, the effect being decidedly good.

From Messrs. J. Peed and Son, West Norwood, came an in-

interesting display of Primulas, with a few other hardy flowers, edged with plants of Saintpaulia ionantha, nicely in flower. Messrs. W. Cutbush and Son, Highgate, staged a few vases of cut Carnations, which included Mrs. T. Lawson, Princess of Wales, Mrs. S. J. Brooks, Harry Fenn, Winter Beauty, and The Queen. Mr. Chas. Turner, Slough, exhibited plants of Rose Madame N. Levassieur, a nice dwarf Polyantha variety; also a collection of Violets in baskets, and a Viola named Constancy—a pale yellow variety noted for its early flowering.

Medal Awards.

FLORAL COMMITTEE.—Silver-gilt Flora to Messrs. W. Paul and Son, Waltham Cross. Silver-gilt Banksians to R. and G. Cutbush, Southgate, and W. Cutbush and Son, Highgate. Silver Floras to George Mount, The Nurseries, Canterbury; John May, Twickenham; T. Cripps, Tunbridge Wells. Silver Banksians to J. Russell, Richmond; Jas. Veitch and Sons, Chelsea; C. Turner, Royal Nurseries, Slough; and B. S. Williams, Victoria Nursery, Upper Holloway. Bronze Banksian to W. C. Modral, Biggleswade.

ORCHID COMMITTEE.—Gold medals to N. C. Cookson, Oakwood, Wylam; and W. A. Bilney, Weybridge. Silver Banksians to Charlesworth and Co., J. Veitch and Sons, and Hugh Low and Co.

Certificates and Awards of Merit.

Cypripedium japonicum (T. S. Ware (1902), Ltd.).—A botanical certificate was here awarded to this rarely flowered hardy Japanese species. The lip is large and balloon-like, white, with tiny crimson spots. The leaves are heart-shaped. Bot. Cert.

Lælio-Cattleya x *Mme. M. Fournier*, var. *W. H. Young*.—*Cattleya labiata* x *Lælia Digbyana*. One of the prettiest of the Digbyana hybrids, and of good firm build. The lip is 3 in deep, fringed as in "Digbyana," bright rose-mauve, with yellow throat partly veined. The sepals are narrow, but the petals are 1½ in broad; each of these are light mauve pink. A.M.

Lælio-cattleya luminosa var. *Mikado*.—A monster flower, a hybrid from *Lælia tenebrosa* and *Cattleya aurea*. The violet purple lip is fully 4 in. long, fluted to the front, which opens well, displaying a velvety surface and much-fringed wavy edge. The forward drooping, wavy, crisped petals and sepals are long and large, the petals bending back from the midrib. The colour is coppery-red, and the sepals are cinnamon-golden. F.C.C.

Odontoglossum x *Ardentissimum* var. *Cooksonia* (N. C. Cookson).—A handsome flower of grand shape. The flowers are of moderate size, rounded, with wavy, slightly-crimpled segments, heavily barred and blotched with magenta-purple, and they are partly flushed with magenta. The raceme had eleven flowers. F.C.C. From Oakwood, Wylam.

Odontoglossum crispum *Sybil* (N. C. Cookson).—A finely-made flower of moderate size, blotched and spotted with dark red on a pure white ground. A.M.

Hepatica angulosa alba (Barr and Sons).—A large flowered pure white variety, of starry form. A.M.

Odontoglossum Pescatorei Kathleen (J. and A. McBean).—A very distinct flower, with segments set close at the base, broad in the middle, and curving gracefully outward, recurvingly at the tip, and narrowing to the base. The petals are white, with two to three purple spots in the middle, and the sepals are flushed purple. The lip is orange at the column and spotted, but white at the apex. A.M.

Odontoglossum Waltoniense Rosefieldiense (de Barri Crawshaw).—An attractive variety with pale-tea flowers, the middle of each segment being almost white. Each segment has a double brown dot about the middle, and the lip bears a brown blotch with white fringed edge. It is yellow under the column. A.M.

Odontoglossum crispum *Prebendary Bevan* (H. T. Pitt).—Though the segments do not form a closed, round flower, but rather radiate, yet they are stout and well expanded. The ground colour is white, heavily blotched, and spotted with brownish red. The flowers are large. A.M.

Royal Botanic, Regent's Park.

The first event of importance in the programme of this society for the present year took place on Wednesday a week ago, when the spring flower show was held. A large number of certificates were awarded to novelties.

Messrs. Cutbush and Son, Highgate, were represented by such forced shrubs as *Spiræa confusa*, *Magnolia stellata*, *Prunus triloba*, *Staphylea colchica*, *Lilacs*, *Guelder Roses*, &c. The hardy plant collection comprised *Muscari botryoides alba*, *Fritillaria armena lutea*, *Primula rosca*, *Shortia galacifolia*, *Epigæa repens* (well flowered), *Crocus biflorus*, *Iris bucharica*, *Stylophorum diphyllum*.

Messrs. J. Hill and Son, Barrowfield Nurseries, Lower Edmonton, Middlesex, had a collection of exotic Ferns: while some valuable orchids were staged by H. T. Pitt, Esq. (gr., Mr. Thurgood), Stamford Hill, N.; and Messrs. T. S. Ware had a representation of wall gardening. Messrs. W. Paul and Son, Waltham Cross, staged pot specimens of single, semi-double, and double Camellias. Some of these we name under certificated

plants. Barr and Sons had a large collection of Daffodil blooms and some crimson coloured *Primula obconicas*.

Messrs. Champion and Co., 115, City Road, E.C., staged their excellent and highly-finished oaken tubs of all shapes and sizes for shrubs and plants. A large silver medal was awarded. Messrs. Valls and Co., 16, Coleman Street, E.C., sent a display of Beetecute, and obtained a silver medal. Mr. A. P. Bruce, Chorlton, Manchester, sent the new patent flower displays recently figured in the *Journal*. The Charteris Protector Co., 23 to 25, Charterhouse Square, Aldersgate Street, sent seed protectors. The Lubrose Paint Co., Moorgate Station Chambers, E.C., had their paint—which is specially adapted for glass houses. This was given a certificate. Messrs. Barton and Sons, Ltd., Beehive Works, Walsall, sent fence spikes of a special shape for protecting fences against boys or others climbing thereon. Mr. H. Pattison, 1, Farm Avenue, Streatham, S.W., had samples of his patent lawn boots, obtaining a certificate of merit. Mr. Geo. Kenrick, 7, Crosby Square, Bishopsgate Street Within, E.C., sent a patent flower pot of ornamental ware, one pot with a wide rim fitting into another, thus ensuring a drip-space. Messrs. Lumley and Co., 1, America Square, Minorities, E.C., staged a compressed air-sprayer.

MEDAL AWARDS.—Gold to H. T. Pitt, Esq., Stamford Hill, N., and Messrs. Cutbush. Large silver-gilt to Messrs. Paul and Son, Royal Nurseries, Waltham Cross. Large silver to Messrs. T. S. Ware (1902), Ltd., Feltham. Large silver to Mr. John Odell, Violet Farm, Colham Green, Uxbridge; silver-gilt to Barr and Sons, Covent Garden; silver-gilt to John May, Gordon Nursery, St. Margaret's, Twickenham; silver to Bull and Sons, King's Road, Chelsea, London; and another silver to B. S. Williams and Son, Upper Holloway, London, N. Bronze medals were awarded to J. Laing and Sons, Forest Hill; and to James Williams, 4A Oxford Road, Ealing, W.

CERTIFICATES OF MERIT FOR "NEW" PLANTS.

Cattleya Enid magnifica (Mr. H. T. Pitt).—A lovely flower with crimped edges to lip and segments. The edges are silvery; the lip is purple with yellow throat and deep rose-mauve petals and sepals.

Cattleya Triana "Our King" (H. T. Pitt).—A large bold flower with long prominent lip, fluted to the front which opens well, with crimped edge, and coloured rich violet-purple. The segments are rose-mauve.

Cymbidium grandiflorum (H. T. Pitt).—This large fine flower with green sepals and petals, and creamy red-blotched lip, received a certificate of merit.

Camellia, Mercury (Messrs. W. Paul & Son).—A semi-double of large size and beautiful disposition of the petals. Rich carmine.

Camellia, Jupiter (W. Paul & Son).—A single carmine-rose, with very thick petals. A grand acquisition.

Camellia, Minerva (W. Paul & Son).—A single salmon-rose with silvery edge.

Camellia, Waltham Glory (W. Paul & Son).—A single of bright crimson scarlet colour.

Odontoglossum crispum, Stanley James Pitt (H. T. Pitt).—The segments have each one large brown blotch, and other smaller ones, but the form is not very fine.

Odontoglossum crispum, Persimmon (H. T. Pitt).—This gem among crispums received a Floral Certificate of Merit.

Iris Haynei (W. Cutbush & Son).—A Cushion Iris, a new species from Palestine, with black, satiny falls, which curl back upon themselves. The dark spot in the centre of these falls is most striking. The standards are royal purple streaked with grey. Altogether a beautiful flower.

Nephrolepis Piersoni (J. Hill & Son).—This we have previously referred to when it received a F.C.C. from the R.H.S. It is much thought of in America. The type from which it comes is probably exaltata, but in this the pines are themselves pinnate, making the fronds bi-pinnate.

Primula, obconica Crimson King (Barr & Sons).—A rich deep lilac-crimson, a decided advance in coloured obconicas, and sure to be admired wherever known.

National Fruit Growers' Federation.

The monthly meeting of the council was held at the Westminster Palace Hotel on Monday, March 14. Colonel Long, M.P., took the chair, but being compelled to leave at an early stage of the proceedings, his place was filled by Mr. F. S. W. Cornwallis, the president elect. A letter was read from Messrs. W. and H. Bracey, of Martham, near Great Yarmouth, respecting their claim against the Midland and Great Northern Railway Companies under owners' risk, which had recently been tried in the Yarmouth County Court, where a verdict was given in their favour, but against which the railway companies appealed. As the Board of General Managers have promised to further consider and define the conditions of conveyance of fruit at owners' risk, and as the matter is also being dealt with by the Departmental Inquiry, it was decided to defer the consideration of Messrs. Bracey's case.

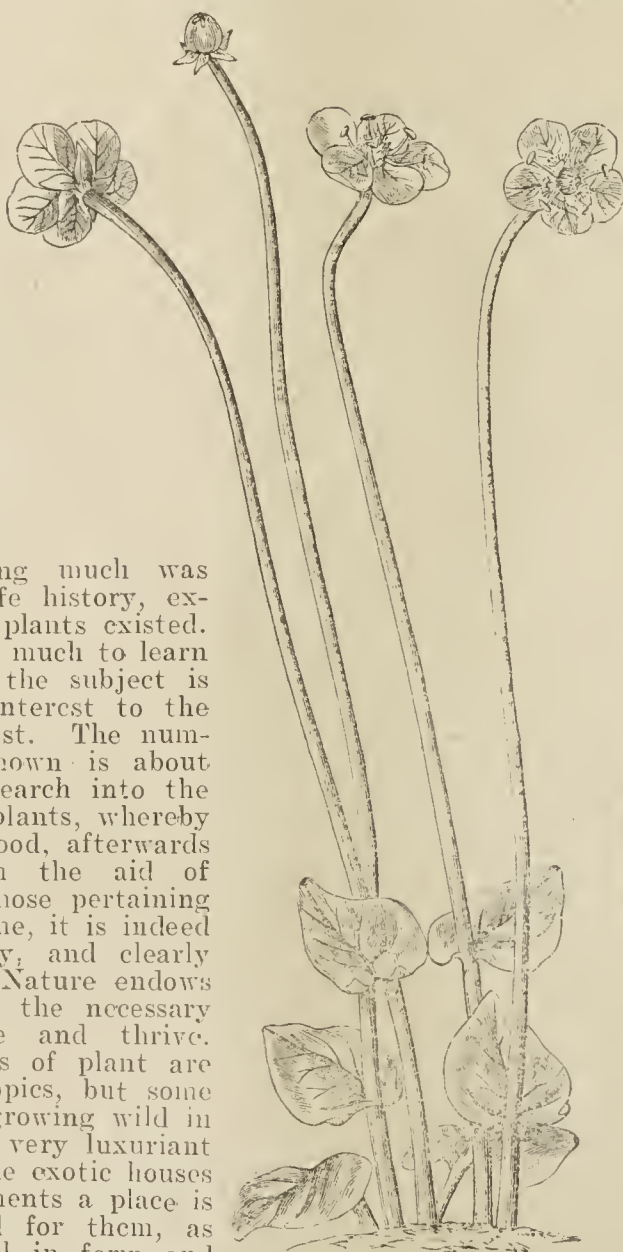
A discussion took place on the question of preferential rates, which was raised by an instruction to the committee in the House of Commons on the Lancashire and Yorkshire Railway (Steam Vessels) Bill, to be moved by Sir W. Tomlinson on Thursday next after the second reading. The instruction reads as follows:—

"That it be an instruction to the committee that they insert provisions in the Bill requiring the Lancashire and Yorkshire Railway Company, in respect of any through rates for the carriage of merchandise between foreign countries and places in the United Kingdom which the company make or charge, or to which they are party, to set out in their public rate-books at the ports of Goole and Hull, and any ports which may be hereafter established between those places, how much of each such rate is justly and reasonably appropriated by them, or is paid, payable, or agreed to be paid to or by them for (i) land carriage abroad; (ii) dock, harbour, and shipping charges abroad; (iii) conveyance by sea; (iv) dock, harbour, and shipping charges at the British port; (v) and conveyance by railway, either by goods or passenger trains, including any terminal and cartage charges in the United Kingdom."

The council passed a resolution fully approving of this instruction, and calling on all members of the House of Commons who are members of the Federation to support it. The next meeting of the council was fixed for Monday, April 18, and the annual general meeting for May 9.

Croydon: Insectivorous Plants.

The lecture arranged in the Croydon and District Horticultural Mutual Improvement Society's syllabus for March 15, was one on "Fungi," but owing to a bad attack of influenza the lecturer (Mr. G. Massee, Kew Gardens) was unable to attend. However, through the kindness of Dr. Brook Ridley, Croydon, the members were well entertained with a talk on "Insectivorous Plants." The lecturer remarked on the indebtedness to Darwin for the great researches made by him in this class of plant, for until this great scientist took up the study, nothing much was known of their life history, excepting that such plants existed. There is, however, much to learn about them, and the subject is one of immense interest to the present-day botanist. The number of species known is about 500. When we search into the habits of these plants, whereby they catch their food, afterwards digesting it with the aid of acids similar to those pertaining to the human frame, it is indeed a wonderful study, and clearly shows again how Nature endows her subjects with the necessary functions to live and thrive. Most of this class of plant are natives of the tropics, but some are to be found growing wild in this country in a very luxuriant manner, and in the exotic houses of good establishments a place is sure to be found for them, as they are beautiful in form and flower, and always attract attention with their peculiar habits. Some of the species illustrated were the Bladderwort, which is rootless, and lives suspended in water, Nepenthes, or Pitcher Plants, Sarracenias, Darlingtonia, Drosera, or Sundews, and Dionæa or Venus's Flytrap. A few questions were asked the lecturer relative to his subject, to which he gave lucid replies. The proposition of a very hearty vote of thanks to Dr. Ridley received unanimous support from the members, and to this he replied in suitable terms. Mr. M. E. Mills, Coombe House Gardens, displayed an interesting exhibit of various "Fungi."



"Grass of Parnassus."

See page 253.



Hardy Fruit Garden.

GRAFTING.—Apples needing this operation may now be taken in hand, except in the case of backward localities where the work may be deferred for a week or two longer. Pears, as a rule, are the earliest to commence growth, and should be dealt with first. By grafting, many trees now producing useless varieties may quickly be converted into profitable bearers. Make sure that there is a proper junction between stock and scion, and support each graft with a stick, or they are liable to be blown out after making a little growth. We never use anything for covering but L'Homme Lefort Mastic, this being so cleanly and handy for use.

PEACHES ON WALLS.—In most districts these are later in flowering this season, but in favoured positions growth will be starting, and a sharp watch must be maintained for aphides. Should these appear on the young shoots while the trees are blossoming the latter should be dusted with tobacco powder; this will keep the insects in check until the flowers fade, and stronger measures can be taken. Cherries on warm walls in favoured positions will be early in flower, and unless protection is provided night frosts are almost certain to play havoc with the blossoms. Fish netting, either double or single, hung over the trees will usually prove efficient for warding off the frost.

PLANTING FRUIT TREE BORDERS.—It is almost impossible for gardeners to avoid cropping the borders in which fruit trees are planted. An effort should be made to utilise them for small, quick growing crops that do not obtain a deep hold of the soil; as such positions are usually the best to be found in gardens for early supplies of Peas and Potatoes, the practice of thus planting them can but seldom be avoided. If care is taken in digging, and the roots of the trees have generously judicious treatment, very little injury will result.

BUSH FRUITS.—The cleaning of the ground amongst these must be concluded without further delay. There is still time to dress Gooseberries and Currants with manure, but this ought to be turned under the soil to prevent the winds from drying it, and depriving it of its fertilising properties. The work of turning the soil should be carefully done, as roots are now beginning to be active. Raspberries may receive a mulching of well-rotted manure if they have not yet received attention. They will repay liberal treatment in this respect, but avoid digging amongst the roots: to this erroneous practice may be attributed many failures in their culture.

THE FRUIT ROOM.—It is to be feared that but a very small quantity of fruit now remains in store. Such as there is should be carefully husbanded. Take an early opportunity of having the shelves and room generally thoroughly cleansed, throwing open doors and ventilators, so that a thorough sweetening may take place in readiness for the future.—J. W., Newent, Glos.

Fruit Forcing.

VINES: EARLIEST HOUSES.—Colouring will shortly be proceeding in the very early started houses. To insure well-developed berries afford a thorough supply of tepid liquid manure, and mulch the border at once with an inch or two of partially decayed manure, preferably rather lumpy. Stable litter, having the strawy portions shaken out, thrown into a heap, and when commencing to heat turned over twice at intervals of about four days between, forms excellent mulching material. This will give a stimulus to the roots and secure healthy foliage, while the moisture will be sufficient, in most cases, for the Vines until the Grapes are cut; but they must not lack water at the roots, as this will cause the premature ripening of the wood and the loss of the principal leaves, which may induce fresh growth when the Vines should be going to rest. Damping the house must be continued until the berries are well advanced in colouring, after which reduce the moisture gradually, and insure a circulation of warm air day and night by regulating the ventilation judiciously. The temperature should be maintained at 70deg to 75deg in the daytime, with a rise of 10deg to 15deg from sun heat, allowing the temperature to fall during the night to 65deg, or even 60deg.

VINES IN FLOWER.—Afford a circulation of warm, rather dry air, and a temperature of 65deg to 70deg at night for Black Hamburgs and similar varieties, and 70deg to 75deg for Muscats. The extra warmth draws out the bunches, aids the development of the flowers, and the potency of the pollen. Muscats and other shy-setting varieties should be brushed over with a camel's-hair brush about the time the blossom is fully expanded, so as to rid

the stigmas of the caps and glutinous substance, choosing a warm part of the day after the house has been freely ventilated. This will render them fitted for fertilisation, which should be effected by brushing them over with a brush surcharged with pollen, taken from such free-setting sorts as Black Hamburgs and Alicante.

SUCCESSION HOUSES: DISBUDDING.—It is not good practice to attempt this until the bunches appear in the points of the shoots, and then it ought not to be done in a hurry, or a large reduction be made at one time. Proceed gradually and with determination, so as to give as little check to the Vines as possible. Retain no more shoots than can have the full benefit of light, as crowding is one of the greatest evils in Vine culture. Allow for the due extension of the laterals, for on this depends sustained root activity till the crop is perfected.

STOPPING THE GROWTHS.—The bearing shoots should be allowed to extend in accordance to the space. If this is limited, the Vines being close, the shoot may be pinched at the first joint beyond the bunch, and this should be done when the leaf at the joint is the size of a penny. If there is a moderate space between the rods, allow two joints beyond the show for fruit. When there is abundance of room allow the shoots with fruit to extend three or four leaves beyond the bunches before taking out their points, doing this at the stopping joint when the leaf is the size of a farthing. Laterals will push from the joints both above and below bunches. Those below may be rubbed off, except from the two lowest leaves, which should be pinched at the joint; or if there is a good distance between the spurs in the rods, all the laterals below the bunch may remain, pinching to one leaf. But laterals above the bunch may either be pinched to one joint or allowed to extend until available space is fairly furnished; then pinch, and keep them within bounds afterwards by stopping to one joint as made.

THINNING.—This is a very important operation both as regards the bunches and berries. Remove all duplicate bunches as well as superfluous before they flower. Setting depends on the good form of the bunch, and on its receiving the essentials of fertilisation. Free setting varieties may have the berries thinned as soon as they are out of flower, but Muscats and other shy-setting varieties should not be thinned until it is seen which berries have been properly fertilised by their taking the lead in swelling. Every berry should have room to swell without becoming wedged, and yet leave enough berries to insure the bunch retaining its firm cut.

WATERING: FEEDING AND MULCHING.—Until the Vines are in leaf they require very moderate supplies of water, sufficient only to keep the soil moist, but when the leaves are full sized, the evaporation from them is considerable, and from that time until the fruit ripens they must not lack water at the roots. It is difficult to state how often the borders will need watering, through their being so variable in dimension and formation. A narrow border will require watering twice as often as one double the width, assuming the Vines to be equally extended and cropped, while a border of loose materials will need water much more frequently than one formed of firm, retentive loam. Consequently, the grower must be guided by the state of the Vines in relation to the rooting area, and have due regard to the weather, as water will be required much oftener in hot, dry weather than when cold and dull. The proper procedure is to examine the border, and when water is necessary give it abundantly. Surface dressings of artificial fertilisers are of much benefit for the health of the Vines, and the swelling and perfecting of their crops. There are several advertised which are excellent, and may be applied, according to the instructions, at intervals of three to six weeks. A dressing may be given as soon as the Vines start into growth, a second when they are going out of blossom, another after the Grapes have been thinned, a fourth during stoning, and a final one when the Grapes commence colouring and are taking the last swelling.

LIQUID MANURE is more prompt in action than a top-dressing, and may be supplied whenever watering is required, taking care that it is not too strong, and is warmed to the mean temperature of the house. Vines restricted to narrow borders will need higher feeding than those with large rooting areas, affording liquid manure whenever water is requisite, but it is well to change the food occasionally. A mulching of short, sweet, lumpy manure, as stable litter freed from straw, about an inch thick, and added to from time to time, so as to maintain that thickness, is excellent for ordinary borders, but those composed of light porous materials should have a mulching of well-decayed manure, as it lies closer, and the roots of the Vines are attracted to it through its retaining moisture better and longer.—G. A., St. Albans, Herts.

The Flower Garden.

CARNATIONS.—Strong plants of self and border varieties which have been wintered as rooted layers in frames or pots under glass may, as soon as they are duly hardened, be planted out in specially prepared beds or groups in the borders. They will succeed best in fairly strong, loamy soil mixed with a dressing

of decayed manure, adding a sprinkling of soot and bone manure. Plant firmly. Rooted layers planted in autumn will need the soil making firm about them, stirring also the spaces between the plants, and sprinkling over with soot. A good top-dressing of rich soil will much improve older established plants, and assist them in producing a profusion of bloom.

SOWING CARNATION SEEDS.—It is a good plan to sow a few seeds every year to raise plants which will flower well the succeeding year. They prove interesting, and are valuable for cutting. Fill pans with light sandy soil, water, drain, then sow the seeds, which cover lightly with soil. Over the pan lay a square of glass, and place in a greenhouse or frame, maintaining the soil moist. If kept close the seed will germinate without artificial heat, and the seedlings kept near the glass in an airy position will become sturdy. They may then be potted into 2½ in pots, keeping them in frames until still stronger established, and they are ready for planting in flowering positions. This may be done early in the autumn, or sooner if the plants are ready.

SEEDLING BEDDING PLANTS.—Attention must be given to seedling bedding plants raised in heat. Do not allow them to remain too long in a high temperature after germination, but transfer as soon as possible to a very light position near the glass in an ordinary greenhouse so as to encourage a stocky growth. Some of the earliest raised plants should be pricked out in boxes placed in a warm frame until established, when give cooler treatment. Lobelias, Ageratums, and Pentstemons will come under this head. Propagate stocks of Heliotrope, Geranium, Mesembryanthemum, Iresine, Coleus by cuttings. Stock plants of Lobelia may be divided and potted or boxed now, forming good tufts. Plenty of frame room should be provided for hardening off boxes and pots of seedlings, and for the general growth of a variety of subjects.

BEDDING GERANIUMS.—The stock of rooted cuttings in pots and boxes must be potted off singly in 3 in pots. One crock will do for drainage, and over that a piece of turf or the rough portions of the compost, which may consist chiefly of loam, with a little decomposed manure and sand added. Stand the potted plants in the greenhouse, giving but little water for a few days. When fairly established they will require moving to a frame. If the stock of any variety is not large enough, and cuttings are procurable from old plants, these may be inserted now either singly in small pots or round the edges of others, using sandy compost. They will endure a rather dry heat, in which they will soon root, afterwards receiving the ordinary treatment of established plants.

ECHEVERIAS.—Echeveria secunda glauca which having been preserved successfully through the winter in cool, dry frames, may be overhauled, and the offsets taken off, planting these closely together in any cool, sheltered position where slight protection may be given them from morning frosts. Any kind of soil will do for them, preferably that which is loose and gritty. The smallest offsets will grow if the stock is short. The older plants with strong roots of undue length may have these shortened conveniently. Pick off all the dead leaves and decayed portions. Where the centres are decayed the plants are useless. Water may be given when the weather is fine and warm. The choicer varieties of Echeverias may be kept in boxes in a cool house or frame at present.—E. D. S., Gravesend.

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

"Old Boy's" Words of Cheer.

Thanks to "E. E. H." for his letter on page 221. It is very encouraging, not only to me, for it must be of incalculable value in quickening an emulative spirit which exists in bothydom, but needs a little "prodding" to make it a potent factor in progression. As your correspondent premises, I have "trodden the path," and, being well on to the far end, know just exactly where the turnings are (practically all in the early stages, in bothydom), and where the stones lie along the road ready to trip the traveller up. How strong is the temptation to preach! What grand sermons in stones! The one must be resisted, the other shelved pro tem.; but all the preaching I have been responsible for, and all the stones I have tripped over, or avoided through seeing the catastrophe occurring to those just ahead, can never have the commanding influence of such inspiring letters as that of "E. E. H.," by reason of that long stretch which lies between me at the end of a gardener's path and young fellows beginning it in the bothy. It is now some years since I started prompting the lads with memories and morals of bothydom—continued at intervals, in some shape or form, till now. That such has been,

and is, of some service I believe, but examples which are far off can never have the potent effect of those which are immediately present, as so pertinently expressed by "E. E. H." in his welcome letter, for it is easier to follow models than rules. Such letters are what I wanted for my beloved object, and, like Oliver Twist, "I want more."

"G.'s" conundrum, on the same page, is a poser, inasmuch as one has no personal key to character in the instance described. But that the character, so far as it is exemplified, is a very strong one I do not doubt, and sufficiently strong, I should say, to bring the young man out at the top. The case is, I believe, exceptional, if not unique, in bothydom. A library is a fine thing, and so is a full pocket; but we don't want bookworms in the bothy, and we don't want misers, and, so far as my experience is concerned, there is, here, but little danger of either. Many books, with the object of cramming a man's head with other men's brains, is not the object of reading as I take it, that object being to read, mark, learn, and digest in order to develop one's inherent ideas and individual character; otherwise the reader is but a copyist. Hence, "Some books I'd have, and some acquaintances too, but very good and very few."

And I don't want our boys to save money for pure love (which is very impure love) of gold, but for its usefulness and power; so the answer to the conundrum is this: that if one can't have a big bookshelf without an empty pocket, then take the common-sense course in adopting the happy medium, for I do not think a full head can carry itself in that manly, independent way that all young gardening heads should be carried on an utterly empty pocket; and many an opportunity is lost for want of a pound. It is pleasant to add that, not long since, one of our bothy lads (who had been preached at a bit anent the Post Office Savings Bank) brought me his bank book—sounds "nice!"—to show me that His Majesty held three pounds in trust for him. A good start. Proud! Was he? Rather; but not more so than—AN OLD BOY.



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

VARIOUS (X. Y. Z.).—Your queries came too late to be answered this week, but they shall receive attention next week.

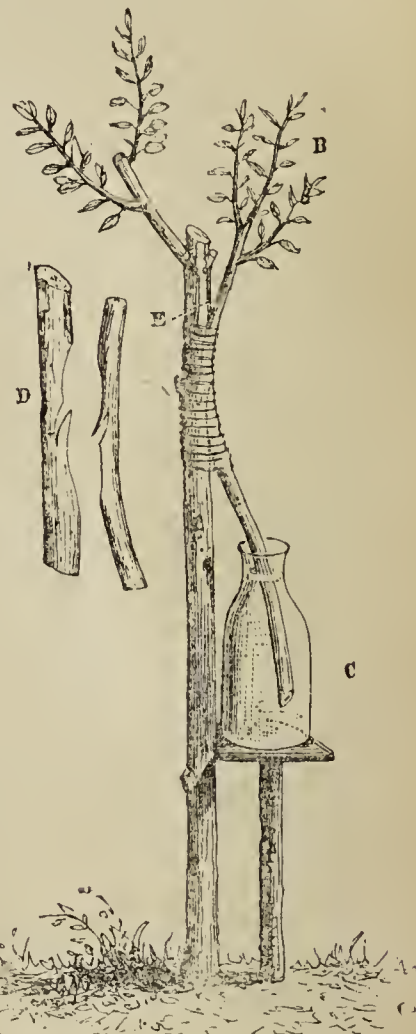
SENDING OF PAPER (G. G.).—So many papers come that, alas! we cannot even look through them all. The cutting will be sufficient, thanks.

FERTILISER FOR MELONS (H. O. H.).—The information is given occasionally by Mr. Abbey, under "Work for the Week." But either Clay's Fertiliser or Thomson's Manure may be recommended in a weak liquid state twice a week, or even thrice, during the active growing season. Attention to all points of detail is necessary to ensure the highest success, but in aiming at size be careful not to spoil the flavour.

BRITISH BIRDS (C. E. P.).—"Twite" is a popular name in some districts for the brown or common linnet, as you surmise. The object of the articles on British birds is not to treat of their natural history, but briefly to direct attention to their utility or otherwise as affecting cultivators, which is chiefly influenced by the nature of the food of the several species, resident or migratory. Goat Sucker should be read for Gnat Sucker, and Cotile for Cotite, the scientific name of the Sand Martin. In connection with the eggs of the Sand Martin, they certainly are speckled in our experience.

EFFECT ON GRASS THROUGH SPRAYING FRUIT TREES WITH CAUSTIC ALKALI WASH (J. D.).—The spraying of fruit trees with caustic alkali solution is certainly injurious to the grass or herbage beneath, but when the wash is applied by means of a knapsack sprayer which produces a fine spray, and only enough liquid used to just wet the twigs and branches, avoiding an excess, the damage is not material, indeed, the spraying being performed whilst the trees are quite dormant, as it should be in all cases with the caustic soda and commercial potash (pearlash) solution, the injury to the grass is not consequential, as the herbage is also more or less dormant, and may do good by killing moss, &c.

BOTTLE-GRAFTING (B.).—Bottle-grafting has been practised for many years in this country for uniting Oranges, Oleanders, Vines, and other plants; but there is usually a special reason for adopting such a means. An instance where bottle-grafting was largely practised in a market garden known to us was completely successful. In the month of January the roofs of most of the houses were covered with Black Hamburgh Vines, and nine months afterwards with splendid, well-ripened canes of late Grapes, capable of bearing a heavy crop of fruit. The grafts were, before pruning, 15ft to 20ft in length, and as thick as one's thumb, short-jointed, and studded with bold eyes of abundant promise. At the time that these grafts were being matured, the stocks on which they were worked ripened perfectly ten bunches of Grapes apiece, of weights varying from 1lb to 3lb each. Ten days after starting the houses in February, the gardener put on 177 grafts of various kinds. The grafts pushed at the same time as the stock, and, with seven exceptions, in a short time the union was complete. The grafts had been put on wood of various ages from four years to one year old, and without much difference in after growth. If grafts are plentiful, they should be not less than 1ft in length, but if scarce, less will do. Take a slice off the graft in the middle, say 5in long, leaving 4in at the bottom to go into the bottle, and 3in above the slice to push and form the future Vine. Take a similar slice off the stock, fit the two together, and bandage round with tape or some such material. Nothing else is required. The suspended bottle should be regularly filled with rain water, and a little powdered charcoal is put to keep it pure.



Bottle Grafting.

B, scion; C, bottle; D, E, stock.

AMERICAN GARDENING PAPERS (F.).—"The Florists' Exchange," every Saturday, 2 to 8, Duane Street, New York; "The American Florist," 324, Dearborn Street, Chicago; also "The Weekly Florists' Review," Chicago. These seem to be the leading horticultural trade papers in the U.S.A. "American Gardening," 136, Liberty Street, New York, City, is mainly devoted to private gardeners and parkmen. The three first-named cost 1 dollar per year (from the trade only); the last-named cost 5 cents per copy.

TREES FOR AN ISLAND (Daisy).—The most suitable are the Alders, Birches and Willows. Of Alders, *Alnus glutinosa* foliis aureis, *A. g. laciniata*, *A. g. laciniata imperialis*, and *A. incana nova pendula*. Of Birches, *Betula alba*, *B. a. fastigiata*, *B. a. laciniata pendula*, *B. a. pendula* (young), and *B. a. purpurea*. Of Willows, *Salix alba*, *S. americana* and var. *pendula*, *S. babylonica* (common Weeping), and var. *annularis* (Ringlet Willow), *S. Caprea pendula* (Kilmarnock Weeping), *S. cardinalis*, *S. purpurea pendula*, *S. regalis* and *S. sericea pendula*. Of shrubs the Dogwoods are fine: *Cornus alba* Späthi, *C. brachypoda variegata*, *C. florida pendula*, *C. f. rubra*, *C. Kousa*, *C. Mas elegantissima aurea*, *C. sanguinea atro-sanguinea*, and *C. s. variegata*, *Deutzia scabra candidissima*, *D. s. discolor purpurascens*, *D. s. flore pleno*, *D. s. Wellsii*, *D. s. Watereri*, *Spiraea salicifolia* and var. *paniculata alba*, *S. callosa* and var. *atro-sanguinea* and *splendens*, *S. ariæfolia*, *Guelder Rose* (*Viburnum Opulus sterile*) and *Weigela* (*Diervilla*) *rosea* and vars. also do well in damp situations. No shrub is finer for foliage than the Golden Elder (*Sambucus nigra aurea*). For gracefulness the Bamboos are indispensable in sheltered situations. *Arundinaria nitida* and *A. Simoni*; *Phyllostachys Henonis*, *P. nigra* and *P. viridi-glaucescens* are noble plants. Of Grasses, *Apera arundinacea*, *Elymus glaucifolius*, *Eulalia japonica* and vars. *variegata* and *zebrina*, *Pampas Grass* (*Cyperium argenteum*), *Arundo conspicua*, *Phalaris arundinacea elegantissima*, with New Zealand Flax (*Phormium tenax*). *Bocconia cordata* and *Polygonum sachalinense* are very fine on the margin of water, as also are the Gunneras *manicata* and *scabra*, but they require shelter. The foliage of the Rhubarbs (*Rheum officinale* and *R. palmatum* var. *tanguiticum*) is bold and effective, *Spiræas* *Aruncus*, *astilboides*, *filipendula* fl.-pl., *palmata*, *Ulmaria* fl.-pl. and *venusta* are very fine in damp situations.

BOOK ON BEES (J. D.).—"The British Bee-keepers' Guide," by T. W. Cowan, editor of the "British Bee Journal," price 1s. 6d.

PHOTOS RECEIVED (J. L.).—Have just found your two orchid photos, and will reproduce one. They had been overlooked, (W. B.).—Your *Eucharis* plants are good samples; the photo shall be reproduced.

CHRYSANTHEMUMS: A LEGAL ACTION (G. W. D.).—The issue containing the legal report is out of print, but we reprint it for your benefit. Many of our queries refer to news paragraphs and articles in back volumes of the *Journal*, and it would be both to our and readers' advantage were the weekly issues saved and bound up. These would, moreover, become a household asset in the bound condition. The paragraph was as follows: "A Spoiled Exhibit.—Sheriff-Substitute Sym, Perth, has issued his decision in a case of unusual interest to the gardening profession. Mr. James Beisant, head gardener, Castle Huntley, Longforgan, as an individual, and also as an assignee of his employer, Mr. Armitstead, sued the Caledonian Railway Company for £100 in consequence of damage to valuable Chrysanthemum blooms entrusted by him to the defenders for conveyance to the Edinburgh Chrysanthemum Show in November last. A special van had been engaged for the blooms. While the van was being shunted at Longforgan it was run into and disabled by the shunting engine, with the result (as alleged by the pursuer) that the boxes of blooms were thrown violently from one end of the van to the other, spilling the water supplied in tubes to keep the blooms fresh, and many of the blooms were found crushed and cut, and many of the petals shaken off. The blooms were 144 in number, picked from about 600 plants of the choicest, newest, and costliest varieties. Expert evidence was given by Mr. J. W. McHattie, superintendent of the parks to the Corporation of Edinburgh (who was a judge at the show in question), Bailie Melville, president of the Dundee Chrysanthemum Society, and others. The Sheriff's finding was that the damage suffered by the pursuer consisted of loss of the chance of gaining the Edinburgh City Cup and other prizes, with the accompanying loss of money, loss of professional distinction and advertisement, and partial loss of time, labour, and expense devoted to the production of the blooms, which may be moderately estimated at £60, and found the defenders liable to the pursuer, in this sum, in name of damages."

PRUNING ROSES (Amateur).—The theory that during the growing season the depriving a plant or tree of shoots having healthy leaves correspondingly lessens the increase and power of the roots, is sound and correct; but the fancy that each branch has its own peculiar root is, of course, incorrect. Moreover, this is not yet "the growing season." The whole system of plant vitality is not in full swing till there are well-developed green leaves; though the roots have by this time made numerous white hair-like growths, and the buds on the branches have pushed two or three inches, the connection between them is not yet completed, and will not be till there are green leaves to play the part of lungs in the plant-life. For, on the one hand, the white growth begins on the roots before the buds show signs of moving, and on the other, shoots, even as much as 6in long are sometimes put forth in the spring from trees cut down in the winter in a green state, though the connection with any roots is entirely severed, the growth in such cases evidently coming from the sap left in the trunks. Roses, severely pruned after growth has commenced, will often "bleed" a good deal for several days, sufficiently even to damp the surrounding ground, but I have never observed loss of subsequent vigour in such cases, though it might well be different if the operation were delayed till fully developed green leaves had appeared. The pruning of H.P.'s may be commenced by the middle of March, followed by H.T.'s, with a delay till April for the T.'s. The varieties, of all classes, which bloom earliest should be pruned latest, and vice versa, the object being to avoid young flower-buds having been formed before the arrival of the inevitable cold nights of May. The manners and customs of the varieties should be considered:—In H.P.'s, *Her Majesty* is a very slow starter, and may be pruned in February. *Violet Bowyer* is very early, and *Charles Lefebvre* and several other crimson roses are apt to form "hard" red buds with their points gone if the buds are subject to cold nights in May. Among H.T.'s, *Lady M. Fitzwilliam* and *White Lady* are very early. The shoots are apt to come entirely blind if the plants are pruned before April. Among Teas, *Devoniensis* and *Souvenir d'Elise* are early, and *Maman Cochet* and others late, and the latter, therefore, should be pruned first.—W. R. RAILLEM.

Miscellaneous Notes.

"Slugdeath."

This laconic, but amply descriptive name, has been applied to a new powdery substance, which is offered by Messrs. H. Stanley and Co., 3, Commercial Buildings, High Street, South Norwood,

S.E. The powder (like very fine sand with a saline taste) is recommended to be sprinkled thinly upon the surface of ground infested by slugs, and is said to kill them.

Lubrose Paint.

On a past occasion we had a sample tin of this non-oxidisable paint brought to our notice by Mr. Charles T. Druery, of the Lubrose Paint Co., Moorgate Station Chambers, E.C. Not only are those who have tried this paint well satisfied with it, but as we have been lately informed, their appreciation is taking the very practical form of solid orders. A man may speak words of praise about an article or preparation; the question is, Does he practise his faith? Sometimes editors metaphorically "lay on the paint," but while an ungenerous public might say that of an editor, an editor would not say the same of the public! And so we shall quote "the public" and shield our fair fame from the inference. Messrs. Bunyard and Co., Ltd., are able to say of Lubrose that "Their painter finds the new paint works well, and they will like five cwt. of the white paint sent on per rail to Maidstone West. They have used the Lubrose paint for outside work and are much pleased with it. It is of fine appearance and sets hard." Messrs. D. Stewart and Son, "Fern Down" Nurseries, Wimborne, Dorset, say: "A second coat of white for outside greenhouse woodwork proves to be quite satisfactory, and a decided improvement on the usual horticultural paint used."

Lubrose is said to be imperishable—that is, it does not contain those oils which, in ordinary paints, cause their destruction by the oxidising effect of the air; nor does it blister. As a paint for use on ironwork, gasometers, or conservatories, it is of the best, and for places in contiguity to the sea its resistive power is especially marked. Ordinary paints exposed to sea-air, in time become powdery and crumble away, as the result of the oxidation. The cost of this new patented paint is dearer, bulk for bulk, than the oil paints hitherto in general use, but whereas four coats (with an extra tempering one) are necessary with the paints of thinner consistency, two coats of this article give a thick, "sweet" and smooth skin, which does not crack, blister, or flake off, and which stands both heat and damp indefinitely. No priming is required; the paint (which is prepared in a number of colours) is very economical in application, and the appearance is equal to the best expensive enamel paints. It is five years since this paint was first prepared, and during that time it has become widely used on the Continent, and in British Colonies. The basis of it is an imperishable rubber-like body.



Difficulties and Work in the Poultry Yard.

March is, or ought to be, for the average farmer's wife the busiest month in the year; that is, supposing she has the personal supervision of the poultry yard. It is the March hatched chicks that make the breeding stock for the next season (for breeding read laying). We may allow a little latitude, and accept those chicks hatched in April. Sometimes the earlier birds, if very forward, begin to lay, and then as soon as the first spell of sharp weather sets in they retire incontinently from their duties, and need much urging and persuasion to take up with laying again. On most farms the fowls are rather a mixed lot, and there may generally be found now plenty of birds ready and willing to sit. Of course, if for a few seasons the sitting element has been eliminated in favour of the purely egg laying variety, there will be a difficulty, and this difficulty can only be overcome by the purchase of an incubator, or the loan of hens from a neighbour. The incubator necessitates a foster mother, and both require a good deal of attention, though nothing inordinate, and a fair amount of paraffin—say, 1d. per day, that is, if bought wholesale. Although we have personally been successful with the incubator, we still rather incline to the hen. We think she is able to comfort and coddle the little chicks better than any artificial heat, and we are sure if allowed a little range is able to cater well for them. She educates them to the due appreciation of worms, insects, and grubs, and takes them to the sunniest corner, and to where the fresh green blade is attainable.

In passing, we might observe that the current price of a

broody hen is 2s. 6d. In the event of obtaining a hen from a neighbour, it is well to try her first for a day or two on some ordinary eggs before trusting her with a selected sitting. At this present moment we have two hens under trial; one promises well, the other, when looked at an hour ago, was in a restless, fidgety state, and we fear she is quite "off" her broodiness. It is always a good point to set two the same date, so that if from any cause one or neither has a good "clutch" the forces may be combined under one mother, and the other hen allowed her liberty.

As to what eggs to set, that opens up so wide a subject that we are fearful of offering an opinion. Leghorns, both white and buff, are good layers; Indian Game make fine table birds; Plymouth Rock and Minorca are hardy. Some folk fancy Houdans, and it is never much use to argue for any variety against a man's (or woman's) inclination. At any rate supposing the eggs have had a journey, it is well to keep them a day or two to settle before putting them under the hen.

All sellers of sitting hens aver that their birds are healthy and have unlimited runs. Imagination often has a good deal to do with the "unlimited run"; but it is certain that those birds which have access to green food and are on fresh clean ground produce the fertile egg. If it is possible to see the birds and their surroundings the egg buyer would be able then to judge as to what risks he was running. It is all very well for the seller to say "all unfertile eggs replaced." We had a case of that last year where the eggs were a total blank. What vexed us most was that the three weeks were entirely lost, and the services of one of our best hens rendered useless.

Eggs will hatch out under nearly all circumstances, but the best results are obtained from nests on or near the ground. A good, or, indeed, the best, nest is made of a thick grass sod (grass side downwards), the rooty part hollowed out to form a nice receptacle for the eggs. It is unnecessary to remark that sitting hens are best in a place apart—i.e., not with the rest of the fowls; but it should be so arranged that these mothers can get in and out at will for food and water. Sitting hens, if at liberty, prefer to feed in the very early morning, and they will come back to their eggs with more or less moisture on their feathers. By instinct they know that the eggs are better for a little moisture, and they also know that a daily airing and turning are advisable. A dust bath is as necessary to a hen as her daily food, and with this luxury, and perhaps a little attention from her owner in the way of insect powder, on and about her nest, she will get through her twenty-one days' confinement pretty free from all irritating visitors.

It is well after a hen has been sitting a few days to test the eggs to see whether or not they are fertile. An egg held before the strong light of a shaded lamp will reveal its contents at once. If perfectly clear it should at once be put aside, and it will come in afterwards in the shape of a hard boiled food for the young chicks. If the eggs from two or more hens prove to be unfertile, it is not a bad plan to make up one nest (if not too many) of the good eggs, and start the quietest and closest sitting hen with a new lot: it will only, after all, be treating her as though she were engaged for the four weeks that ducks' eggs require.

Chickens that need to be helped out of the shell never come to any good—if they have not strength to start the battle of life they certainly have not strength to maintain the very unequal combat. A chicken worth rearing will make itself manifest by the twentieth day; that is, with very few exceptions; and once out and about the first difficulty is surmounted. It is always well to have hens and broods in a yard, field, orchard, or paddock by themselves, where the ground is fresh and clean; that is, from all poultry contamination.

For the first day very little interference with the hen is best. The chicks need warmth rather than food, and when they do require food, their first meal should be of the discarded hard-boiled eggs, and a little oatmeal (dry), and some chopped green-meat:—little and often, and no leavings. Just scatter what they will eat as you watch them, and then they will come with appetite for the next meal.

People differ very much as to what is the best food. Small rice, uncooked, we prefer. Others like it best cooked—meal pastes, stiff and dry—but always a bit of green should be given. Parsley or Lettuce is good. If the birds are set down on grass they will soon be taught by the old hen to "sample" the delicate blades. Very fine grit, sand, and what they can scratch, and must have. Drinking water must be absolutely pure, and the vessel washed daily. Water

fountains into which the most mischievous chick can by no means get itself may be bought for 1s. or 1s. 6d., and amply repay the outlay. It is wonderful how soon the mother, if at liberty, will take her chickens off on journeys of discovery, from which they return with full crops. They get and pick up food stuffs which to us are invisible, and still they are always ready for any contribution. They like variety, too, and pay for it by extra healthiness. House scraps of all sorts (cooked) should be saved up from meal to meal, and given fresh. It is not waste that a friend gets. If milk should be plentiful, we make, or have made for us, a big bowl of curd. There is no living thing which is not better for milk in some shape or form.

Some varieties of fowl feather hardly, or shall we compare it to the difficult teething? In cases of this sort they must be extra well fed, and kept comfortably warm till they get fairly going again.

It is bad economy to let chicks, or, indeed, any young stock, "go back." The pullets need all superfluous energy for the production of eggs, and the young cockerels must be got off as soon as possible to make the roast chicken of commerce. It is a most provoking thing that so often there will be from the best eggs a plethora of male birds just when the pullets were most desired. There is no known means by which this matter of sex can be determined by inspection of the egg: this matter has to be left to chance. We do our best, and, after all, a fat cockerel, though he may not be what we desired, is not an unpleasant addition to our menu.

We have taken up so much space about the young stock that there is hardly room to say aught of the laying fowls. Liberty, water, green food, no Indian corn. Let the corn be sound and good. Don't waste any; but don't stint. Lime is needed for shell, and grit for masticators. If the range is wide enough we should almost advise that the meal of soft food be put aside just for the present; that is, if the weather does not turn bitterly cold, as it did last Easter, when vegetation and insect life both got such a check. As the days lengthen the fowls should be let out early. Remember the worm retires betimes, and it is a pity for the fowls to miss him. Clean hen houses, clean nest boxes, no overcrowding, are as essential as good food and water.

Now, all these things have been said time and time again. There are always amongst us young beginners, and it is no use to deny the fact that even the old practitioners faint and are weary. There is no royal road even to poultry rearing. But, we may say, and say with truth, the pastime in itself becomes so attractive that we forget the drudgery.

Work on the Home Farm.

We have had three sharp frosts during the week, and fairly fine weather. The land was drying nicely, and horse work was again possible, but we had a deluge, and we are in as bad a plight as ever. It will take another week to put things right again.

We are just approaching old Lady Day, and we have not heard of one instance of oat or barley sowing. Surely this must be a record as regards delay of spring work. We were able to ridge out Potato land on two days, and now this work is completed we are ready for planting, and shall proceed to plant in a couple of days' time if no more rain comes. Having manured the land in autumn we have not that arduous work before us now, and we can get the Potatoes put in very quickly.

We also avoid the heavy carting which, with the land so wet, would make present planting almost impossible and very impolitic. We like to plant between dry ridges, but with so much work staring us in the face we must go forward with something, and this planting is preferable to sowing corn or ploughing wet land. The rain following the frosts has made the turnip folds impassable, and all the sheep have been taken on to grass to save them from being bogged.

The lambing still proceeds satisfactorily; a loss of two per cent. of ewes so far will do very well. The lambs are healthy, and the ewes having a liberal allowance of cake are milking well. We use a mixed corn and oil cake, which lambs will begin to eat at a fortnight old, and it is astonishing what a difference to their growth this little bit of help makes.

It is fortunate that we do not need much assistance in the form of cow's milk, for cows are both scarce and very dear. Dairymen are complaining much of the difficulty of picking up useful cows at fair prices. Many cows and heifers must have proved barren, and been fed off, which may have also had some influence in keeping down beef prices.

Sheep are now being clipped for market, but it has been easier to get them washed than to get the fleeces dry for clipping. We hear there is more life in the wool trade. We need a little help from that quarter, for there are many years of low prices to make up for. There are several cases of severe influenza amongst horses on more than one farm. Very few foals have arrived yet.

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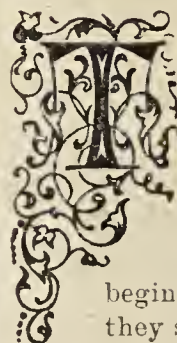
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Journal of Horticulture.

THURSDAY MARCH 31, 1904.

The Dahlia Analysis.



HIS series of Dahlia analyses attains its majority this year, the first issue having appeared in the "Journal of Horticulture" in 1883.

The time has now arrived when all interested in their gardens are beginning to think what seeds and plants they shall grow during the coming season. Let me therefore put in a good word, if any be needed, for that beautiful early autumn flower the Dahlia; for there are few flowering plants as easily cultivated which will give as much satisfaction, and which will afford such a generous return for any extra care bestowed upon them. The great charm of the Dahlia is that at the very time when most other flowers are beginning to slacken in their flowering, this Autumn Queen of the flower garden is in the very height of its beauty. Take for instance two gardens at this season, one in which no Dahlias at all are grown, and the other in which they are made a leading feature, and the contrast between them will be most striking. In the one garden the glowing display of bright coloured and shapely blooms will almost make it seem that its summer glory has returned, whereas the other will appear by comparison tame and uninteresting.

The number of adverse weather conditions with which Dahlias had to contend against last year throughout their growing period have seldom been equalled. The planting time was all that could be wished, as the weather was then warm and dry, and the ground in good working order. Scarcely, however, were the young plants in their new quarters than there came in the middle of June the heaviest rains of the year, immediately followed by a series of night frosts, which in some places were so severe that in low lying districts and in the colder parts of our Islands the young plants were cut to the ground. A few days later there set in a dry period lasting nearly a month. This drought, coming as it did in the middle of an exceptionally wet summer, was very remarkable. To show its extent I may

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

state that during the twenty-six days it lasted less than a quarter of a gallon of rain fell on each square yard of surface in my garden. No sooner had this, the only dry and genial period of the growing season, come to an end, which it did about the middle of July, than a return to the persistently cold, wet, and sunless weather which had preceded it took place, and lasted until the end of August. Then, as if to complete the tale of disasters, came in that month a series of violent gales, which in exposed gardens did considerable damage to the plants then coming into flower. Can it therefore be a matter for surprise that at the National Dahlia Show, which was held on the 1st and 2nd of September, the number of exhibits should have been fewer than usual? The display was not, however, quite as limited as in 1902, as will be seen from the short statement which follows. In this is given the total number of blooms or bunches, as the case may be, set up in competition at the last five exhibitions of the National Dahlia Society in each of the five principal sections into which Dahlias are now divided.

	1899	1900	1901	1902	1903
Shows, No. of blooms	702	682	832	461	527
Fancies " " " " " " " "	336	314	272	180	181
Pompons, No. of bunches	180	222	228	168	192
Cactus, " " " " " " " "	297	354	357	285	344
Cactus, shown singly	216	798	672	522	660
Singles, No. of bunches... ..	117	126	153	120	156

Although far below in extent what an exhibition of the Society may be expected to be in anything like an ordinary season, the different sections were better represented than at the previous exhibition, but only in one section, that of the single-flowered varieties, was there any marked advance on previous shows. In that section the blooms were, I am pleased to say, more numerously staged than in any other year during the period over which my records for the singles extend, viz., since 1889, or for fifteen years.

Before proceeding to deal with the different sections separately, I should like to direct the attention of your readers to a new publication recently issued by the National Dahlia Society, entitled "The Official Catalogue and Culture Guide," to which I am in a great measure indebted for the selections of varieties for general cultivation given in this analysis. It is certainly the best and most reliable catalogue of Dahlias now in cultivation that has yet appeared, while the directions on culture are equally complete and trustworthy. I would strongly recommend all interested in the cultivation of Dahlias to secure a copy of this little work, which can be obtained of the energetic secretary of the Society, Mr. P. W. Tulloch, Forest Cot, Balcombe, Sussex. Members on joining the Society receive a copy free of charge, and to non-members the price is two shillings, post free.

Show and Fancy Dahlias.

The more modern and more generally popular Cactus Dahlias have to a great extent put the Shows and Fancies into the shade. They are, however, still largely grown and exhibited, and if any amateur who has not done so wishes to try his hand

as a cultivator and exhibitor of Dahlias, he cannot do better than turn his attention to growing these perfectly formed flowers for exhibition purposes, for there is no other section which will put his skill and judgment so completely to the test.

It should be explained that in the accompanying tables the positions of the Shows and Fancies are dependent upon the average number of times each variety was staged at the last eight exhibitions of the National Dahlia Society in all instances where their records will allow of this being done. In the case of the newer sorts, which are few in number, the average records for a necessarily shorter series of years have been utilised.

Mrs. Gladstone, although sent out twenty years ago, and therefore, with the exception of William Rawlings and James Cocker, the oldest variety among the first twelve Show Dahlias on the list, still maintains the position it has now held for eighteen years as the premier flower in the section. The struggle for first place has, however, in recent years been closely contested between Mrs. Gladstone and R. T. Rawlings, the champion yellow variety. Indeed, taking the last four exhibitions alone, the records of the latter come out slightly in advance of those of Mrs. Gladstone. It has now become a neck and neck race, in which the variety having the greatest staying power is certain ultimately to win. Both rivals were last year unusually well represented, and more particularly R. T. Rawlings, which was not only more numerously shown than in any previous year, but also more frequently staged than any other Show or Fancy Dahlia in the exhibition. Other varieties which were last year to be met with in more stands than usual were Duchess of York, Arthur Rawlings, Mrs. Langtry, Shotesham Hero, T. J. Saltmarsh, and Ethel Britton. On the other hand, J. T. West, Duke of Fife, Maud Fellowes, and Victor were but poorly represented.

In the table will be found four varieties which may be regarded as new sorts—those which at the time of the last exhibition were five or fewer years old. Of these Muriel Hobbs (No. 43), which was sent out in 1898, still occupies about the same position as in the last analysis. David Johnson, distributed in the following year, has fallen seven places. Gracchus, a 1901 variety, on its first appearance takes up a place at No. 45, while Merlin, which was only introduced in 1902, will be found at No. 38.

Rev. J. B. M. Camm still holds the premier position in the table of Fancies without any semblance of a rival, and at the last exhibition was, taking into consideration the extent of the different shows, staged oftener than in any previous year, that is to say, since these records were first instituted twenty-one years ago. The record of Mrs. Saunders is almost equally marvellous, as we have to go back to 1889 to find this variety as frequently shown. Considering these are the oldest varieties on the list, one being thirty and the other thirty-one years old, their performances must be regarded as altogether exceptional in the annals of the Dahlia. Matthew Campbell, S. Mortimer, T. W. Girdlestone, Dandy, and Rebecca were all unusually well shown. On the other hand, Mrs. John Downie and Buffalo Bill were both scantily represented.

The only Fancy Dahlia in the table which is five or fewer years old, and has therefore any claim to be called a new

FANCY DAHLIAS.

Position in Present Analysis.	Average Number of Times Shown.	No. of Times Shown in 1903 in True Relative Proportion to the Average.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	23.5	31	Rev. J. B. M. Camm	1873	Keynes	Yellow and red
2	17.6	26	Mrs. Saunders	1872	Turner	Yellow and white
3	16.1	14	Duchess of Albany	1884	Turner	Orange and crimson
4	13.0	21	Matthew Campbell	1889	Keynes	Buff and crimson
5	12.9	5	Mrs. John Downie	1889	Turner	Orange and scarlet
6	11.8	9	Emin Pasha	1894	Keynes	Yellow, striped crimson
7	10.8	7	Goldsmith	1895	Keynes	Yellow, striped crimson
8	10.1	7	Dorothy	1888	Keynes	Fawn and maroon
8	10.1	17	S. Mortimer	1894	Mortimer	Rose, striped crimson
10	9.9	10	Frank Pearce	1886	Rawlings	Rose, striped crimson
11	9.5	3	Buffalo Bill... ..	1890	Keynes	Buff, striped vermillion
11	9.5	14	T. W. Girdlestone	1890	Keynes	Lilac and maroon
11	9.5	7	Watchman	1899	Keynes	Golden yellow, striped crimson
14	9.4	9	Peacock	1877	Turner	Maroon and white
15	8.6	14	Dandy	1891	Keynes	Orange, striped crimson
16	6.5	12	Rebecca	1883	Keynes	Lilac and crimson
17	6.4	7	Prince Henry	1887	Fellowes	Lilac, striped purple
18	5.4	7	Hercules	1877	Keynes	Yellow and crimson
19	5.0	2	Comte de la Saux	1890	Keynes	Lilac, striped crimson

variety, is Watchman (No. 11). It was first distributed in 1899, and occupies a somewhat similar position to that which it took in the analysis issued last year.

Pompon Dahlias.

These miniature Shows and Fancies are year by year increasing in favour, and deservedly so. Indeed, as regards the effective display they make in the garden, and their easy culture, they run the singles very closely.

I append a list of varieties, arranged according to their average records at the last four exhibitions of the Society in all cases where this is practicable. Those kinds which, at the time of the last show of the National Dahlia Society were three or fewer years old, are indicated by an asterisk: 1, Bacchus; 2, Nerissa; 3, Douglas; 4, Emily Hopper; 4, Sunny Daybreak; 4, Tommy Keith; 7, Ganymede; 7, Lilian; 9, Dr. Jim; 9, Phoebe; 11, G. Brinckman; 12, Captain Boyton; 12, Whisper; 14, Adelaide*; 15, Madeline; 15, Nelly Broomhead; 17, Jessica; 18, Buttercup*; 18, Darkest of All*; 20, Arthur

West; 20, Ernest Harper; 20, Rosebud; 23, Hypatia. The following can be recommended in their respective colours for general cultivation as free-flowering and reliable varieties: *White*, Guiding Star; *Yellow*, Buttercup; *Amber*, Daisy; *Orange*, Phoebe; *Rose*, Nerissa; *Rose-pink*, Thalia; *Scarlet*, Douglas; *Crimson*, Arthur West; *Rose-purple*, Little Bugler; *Maroon*, Douglas; *Nearly black*, Darkest of All; *Fancy*, Tommy Keith.

Cactus Dahlias.

This popular section is, no doubt, regarded by the majority of readers as the most important of all. Be that as it may, we owe it a deep debt of gratitude, for it is undoubtedly owing to the introduction of the Cactus Dahlia and its rapid improvement that the interest in Dahlia culture has in recent years been greatly revived and stimulated. In the following table the leading varieties will be found arranged according to the number of times they were staged at the last exhibition of the Society, and also for comparison their records, where available, for the two previous shows.

SHOW DAHLIAS.

Position in Present Analysis.	Average Number of Times Shown.	No. of Times Shown in 1903 in True Relative Proportion to the Average.	Name.	Date of Introduction.	Raiser's or Introducer's Name.	Colour.
1	29.4	38	Mrs. Gladstone	1884	Hurst	Pale blush
2	27.9	40	R. T. Rawlings	1886	Rawlings	Clear yellow
3	23.7	35	John Walker	1892	Walker	White
4	22.1	27	Duchess of York	1894	Keynes	Lemon, edged salmon pink
5	20.0	15	J. T. West	1887	Rawlings	Yellow and purple
6	18.9	20	William Rawlings	1881	Rawlings	Crimson purple
7	18.0	15	Colonist	1887	Keynes	Chocolate and fawn
8	17.6	25	Arthur Rawlings	1892	West	Deep crimson
9	17.5	25	Mrs. Langtry	1885	Keynes	Cream and crimson
10	16.9	13	William Powell	1892	West	Primrose yellow
11	16.0	17	Dr. Keynes	1896	Keynes	Rich buff
12	15.6	15	James Cocker	1871	Keynes	Purple
13	15.1	5	Duke of Fife	1890	Keynes	Rich cardinal
14	14.9	22	Shotesham Hero	1895	Fellowes	White, tipped and shaded rose
15	14.5	18	Florence Tranter	1896	Tranter	Blush white, edged rosy purple
15	14.5	17	Harry Keith	1886	Keynes	Rosy purple
15	14.5	8	Maud Fellowes	1889	Fellowes	Pale pink, shaded purple
18	14.4	12	Chieftain	1894	Keynes	Purplish lilac
18	14.4	12	Mrs. W. Slack	1886	Keynes	Blush white and purple
20	14.0	18	John Hickling	1890	Keynes	Clear bright yellow
21	12.6	8	Miss Cannell	1881	Eckford	Cream and crimson
22	12.1	18	T. J. Saltmarsh	1885	Rawlings	Yellow and chestnut
23	11.9	12	Henry Walton	1873	Keynes	Pale yellow and scarlet
24	11.6	8	Harrison Weir	1883	Rawlings	Yellow
25	11.2	2	Victor	1887	Keynes	Dark maroon
26	11.1	8	Goldfinder	1881	Fellowes	Yellow and red
27	10.4	7	Prince of Denmark	1881	Fellowes	Dark maroon
28	10.2	13	Virginale	1893	Keynes	Blush white, edged pink
29	10.0	7	David Johnson	1899	Humphries	Salmon, shaded rose
29	10.0	7	Marjorie	1896	Fellowes	Fawn
31	9.2	10	George Rawlings	1882	Rawlings	Dark maroon
31	9.2	7	Willie Garratt	1887	Garratt	Bright cardinal
33	8.6	8	Perfection	1889	Fellowes	Orange buff
34	8.5	5	Arthur Ocock	1892	Rawlings	Reddish orange
34	8.5	7	Mrs. D. Saunders	1888	Rawlings	Pale ground, edged rose
36	8.3	8	Daniel Cornish	1897	West	Terra cotta red
37	8.1	7	Shirley Hibberd	1881	Rawlings	Dark crimson
38	8.0	13	Ethel Britton	1880	Keynes	White and purple
*38	8.0	8	Merlin	1902	Turner	Orange scarlet
38	8.0	3	Warrior	1894	Keynes	Scarlet
41	7.9	3	Hon. Mrs. P. Wyndham	1881	Keynes	Pale yellow and rose
42	7.7	8	Mr. Glascock	1886	Rawlings	Purple
43	7.3	5	Mabel Stanton	1896	Tranter	Deep yellow
43	7.3	5	Muriel Hobbs	1898	Hobbs	Yellow
*45	7.0	7	Gracchus	1901	Turner	Orange buff
46	6.9	8	Majestic	1890	Keynes	White, edged purple
47	6.7	5	Crimson King	1887	Keynes	Deep crimson scarlet
48	6.4	0	Imperial	1883	Keynes	Purple and lilac
49	6.1	3	Diadem	1888	Fellowes	Deep crimson
50	6.0	8	Earl of Ravensworth	1883	Harkness	Lilac
50	6.0	2	Glow-worm	1889	Turner	Bright orange scarlet
50	6.0	3	Mrs. Morgan	1893	Fellowes	Pale ground, tinted rosy purple
53	5.4	2	Mrs. Every	1896	Keynes	White, edged lilac

* New varieties, whose positions are dependent on their records for the 1903 show only.

	1903	1902	1901	
1 J. H. Jackson, 1902 ...	34	7	—	Blackish maroon
2 Mrs. Edward Mawley, 1902	32	17	—	Yellow
3 Britannia, 1898 ...	28	22	52	Salmon pink, shaded
3 J. W. Wilkinson, 1901 ...	28	22	28	Rosy crimson [apricot
5 Lord Roberts, 1901 ...	27	26	26	Ivory white
5 Mrs. Carter Page, 1900 ...	27	19	25	Rich crimson
7 Alpha, 1902 ...	19	13	—	Blush, striped purple
8 Gabriel, 1902 ...	17	10	—	Crimson, tipped white
8 Mrs. Winstanley, 1902 ...	17	10	—	Orange scarlet
10 Ajax, 1900 ...	16	14	11	Orange
10 Lyric, 1901 ...	16	9	14	Crimson, yellow base
10 Mrs. J. J. Crowe, 1900 ...	16	23	31	Yellow
10 Uncle Tom, 1900 ...	16	23	39	Blackish maroon
14 Clara G. Stredwick, 1902 ...	15	11	—	Salmon, tinted yellow
14 Mrs. De Luca, 1902 ...	15	9	—	Yellow and orange
14 P. W. Tulloch, 1902 ...	15	8	—	Salmon red, tinted p'rple
17 Cornucopia, 1900 ...	13	15	10	Deep reddish salmon
17 Galliard, 1901 ...	13	20	17	Deep red
17 J. Weir Fife, 1901 ...	13	14	11	Maroon, tinted plum
17 Vesta, 1901 ...	13	15	13	Pink, cream centre
21 Etna, 1903 ...	12	—	—	Carmine, yellow base
21 Mrs. H. J. Jones, 1902 ...	12	3	—	Scarlet, tipped white
23 Countess of Lonsdale, 1899	11	9	29	Salmon, tinted carmine
24 Mrs. J. P. Clark, 1902 ...	10	6	—	Buff, shaded peach, tipped white
25 Ianthe, 1903 ...	9	—	—	Buff, edged pink
25 Mabel Tulloch, 1903 ...	9	—	—	Rosy pink
25 Raymond Parks, 1903 ...	9	—	—	Deep crimson
25 Richard Dean, 1902 ...	9	5	—	Vermilion, tipped white
29 Charles Woodbridge, 1896 ...	1	13	29	Crimson, tinted purple
29 Floradora, 1901 ...	8	13	6	Wine crimson
29 H. J. Jones, 1903 ...	8	—	—	Pale pink, primrose
29 Ida, 1903 ...	8	—	—	Deep yellow [centre
29 Emperor, 1901 ...	8	6	10	Ruby crimson
29 Up-to-Date, 1900 ...	8	5	3	Carmine
35 Eva, 1903 ...	7	—	—	Pure white
35 H. F. Robertson, 1903 ...	7	—	—	Deep yellow
35 Mary Service, 1898 ...	7	2	25	Pinkish heliotrope
35 Viscountess Sherbrook, '99	7	12	19	Terra cotta, suffused apricot
39 Aunt Chloe, 1902 ...	6	12	—	Deep purplish black
39 Ella, 1903 ...	6	—	—	Apricot, sh'd'd vermilion
39 Florence, 1902 ...	6	7	—	Yellowish orange
39 Mrs. Seagrave, 1903 ...	6	—	—	Purplish rose, deeper
39 Phineas, 1903 ...	6	—	—	Crimson scarlet [ground
39 Rosine, 1900 ...	6	10	11	Carmine pink [heliotrope
39 Zephyr, 1900 ...	6	14	18	Carmine pink, suffused
46 Bessie Mitchell, 1900 ...	5	5	7	Orange, shaded salmon and pink
46 Columbia, 1902 ...	5	5	—	Vermilion, tipped white
46 Emperor, 1900 ...	5	4	14	Plum, with yellow base
46 Miss Winchester, 1902 ...	5	—	—	Coral pink
46 Mrs. A. F. Perkins, 1902 ...	5	1	—	Yellow, tipped white
46 Queen Alexandra, 1904 ...	5	—	—	Salmon and pink
46 Red Rover, 1900 ...	5	4	3	Scarlet
46 Starfish, 1897 ...	5	11	9	Scarlet

By examining the above table in several different ways we obtain some very interesting results. In the first place, we find further evidence than that brought forward in my last analysis that the changes from year to year are becoming gradually less rapid and bewildering than was the case only a few years ago. For example, taking the leading twelve varieties on the list, as many as eight appeared among the first dozen in the same list last year. The absentees are Cornucopia, Galliard, J. Weir Fife, and Vesta, all now, curiously enough, at No. 17. Then, again, as showing the same thing. Of the older varieties (as age in the Cactus Dahlia world is reckoned), the following, viz., Charles Woodbridge, at the time of the last exhibition, seven years old, Starfish, then six years old, Britannia, five years old, and Viscountess Sherbrook and Countess of Lonsdale, four years old, which appeared in last year's analysis, again find places in the present one. But the most remarkable instance of stability is to be found in Britannia, sent out six years ago, which occupied the fourth place last year, and this year the third place in the table. Then, again, Mrs. Carter Page, three years old, has risen from No. 7 to No. 5, and Ajax, also a 1900 variety, from No. 11 to No. 10.

The 1901 varieties which have improved their positions since the previous analysis are J. W. Wilkinson, Lyric, and Emperor, while of those sent out in 1902 which have also risen are J. H. Jackson, Mrs. Edward Mawley, Alpha, Gabriel, Mrs. Winstanley, Clara G. Stredwick, Mrs. De Luca, P. W. Tulloch, Mrs. J. P. Clark, and Richard Dean.

Placed according to their colours, the Cactus Dahlias included in the table may be grouped as follows: *White*, Lord Roberts, Eva; *Yellow*, Mrs. Edward Mawley, Mrs. J. J. Crowe, Ida, H. F. Robertson; *Orange*, Ajax, Florence, Bessie Mitchell; *Pink* and *Rose*, Vesta, Mabel Tulloch, Mr. Seagrave, Rosine, Zephyr, Miss Winchester; *Scarlet*, Galliard, Phineas, Red Rover, Starfish; *Crimson*, J. W. Wilkinson, Mrs. Carter Page, Lyric, J. Weir Fife, Etna, Raymond Parks, C. Woodbridge, Floradora, Emperor, Up-to-Date; *Maroon*, J. H. Jackson, Uncle Tom, Aunt Chloe; *Purple*, Emperor; *Various shades of Red*, Salmon, Apricot, &c., Britannia, Mrs. Winstanley, Clara G. Stredwick, Mrs. De Luca, P. W. Tulloch, Cornucopia, Countess of Lonsdale, Ianthe, H. J. Jones, Mary Service, Viscountess Sherbrook, Ella, Queen Alexandra; *Fancy*, Alpha, Gabriel, Mrs. H. J. Jones, Mrs. J. P. Clark, Richard Dean, Columbia, Mrs. A. F. Perkins.

To those who wish to keep their collection of Cactus Dahlias quite up to date, the following list of new varieties which received first-class certificates from the National Dahlia Society last year may be of interest: Comet, pink ground, thickly striped and speckled crimson; Dainty, lemon yellow, shaded pink, tipped gold; Florence M. Stredwick, pure white; George Gordon, yellow base, shading to orange; Hereward, white, striped, and speckled crimson; H. W. Sillem, vermilion-red; Mary (Pompon-Cactus), white, florets edged brick-red; Mrs. H. L. Brousson, pale yellow ground, shaded salmon; Mrs. J. W. Wilkinson, deep rosy pink, with lighter centre; Pearl, rich pink, with lighter tips; Rainbow, light pink; Sirius, yellow ground, thickly striped and speckled crimson; Sweet Nell, deep pink, with paler centre.

For general cultivation, the following selection may prove useful, as in it I have endeavoured to insert only varieties of good habit, which display their flowers well above the foliage, with little, if any, thinning of the shoots: *White*, Spotless Queen; *Yellow*, Mrs. Edward Mawley and Mrs. J. J. Crowe; *Orange*, Lucins and Florence; *Scarlet*, Spitfire; *Crimson*, Amos Perry, J. W. Wilkinson, and Floradora; *Maroon*, Aunt Chloe; *Various other shades*, Britannia, Mary Service, Countess of Lonsdale, and Mrs. McKergow.

Single Dahlias.

It is very encouraging to find how much more largely these dainty single-flowered Dahlias are now being staged than formerly. In fact, last year, as before stated, they were more numerous shown than on any previous occasion. At an exhibition consisting in such a large measure of double flowers, they serve to break up and lighten the general effect, and add to the interest of the display. In the garden, when a large number of plants are judiciously grouped together, and each plant is allowed plenty of room to develop, the effect is such as few who have not yet given single Dahlias a fair trial would believe possible.

Arranged according to their average records for the last three exhibitions, the leading varieties come out as follows: 1, Victoria; 2, Leslie Seale; 3, Polly Eccles; 4, Aurora; 4, Beauty's Eye; 6, Tommy; 7, Columbine; 8, Miss Roberts; 9, Robin Adair*; 10, Alice Seale; 11, Royal Sovereign; 12, Demon; 12, Formosa; 12, Naomi Tighe; 15, Duchess of Marlborough; 15, The Bride; 17, Donna Casilda; 17, Girlie; 17, Snowdrop*; 20, Urban Yonens*. The varieties marked with an asterisk are new sorts, those sent out in 1901 or subsequently. There is a new single Dahlia not placed which is likely to take up a prominent position in future lists, and that is Darkness, as it supplies a long-felt want—a really good maroon variety.

The following varieties can be recommended for general cultivation as being distinct and reliable: *White*, The Bride; *Yellow*, Miss Roberts; *Crimson*, Formosa; *Maure*, Beauty's Eye; *Maroon*, Demon; *Various other shades*—*Lilac*, crimson disc, Leslie Seale; *Petunia*, tipped white, Robin Adair; *White*, margined dark crimson, Victoria; *White*, flushed flesh, margined yellow, Milda; *Pale rose*, shaded pale orange, Columbine; *Satin* fawn, with red disc, Polly Eccles; *Maroon-crimson*, tipped white, Peacock; *Scarlet* and *yellow*, Tommy.—E. M., Berkhamsted.

Dracocephalum speciosum.

Dracocephalum speciosum, which we figure, is a beautiful Himalayan perennial (border) plant, growing 18 in high, with long-stalked, broadly heart-shaped, wrinkled green leaves, downy beneath. It flowers in June, the colour being lilac pink with darker coloured spots on the lip. The flowers are crowded into dense spikes, of the length which we depict. It is a plant suitable for herbaceous borders or rockeries, and likes a deep, sandy loam, in a warm, or, at all events, sheltered position.



The Culture of Pot Roses.*

(Concluded from page 250.)

If plants from the open ground are going to be used for bloom instead of pot-grown plants (which is generally the case with Hybrid Perpetuals and strong-growing varieties), the plants should be lifted as early as possible in September, and potted straight into 24's or 16's into the same compost as is used for the pot plants at their final potting. The plants should then be plunged in ashes about three-fourths way up the pot in an open bed, and they will make some roots before the frosts become severe and stop root action.

The selection of varieties of Roses for pot culture is a very open question, as most growers have their favourites, and the object for which the blooms are required must be known before suitable varieties can be chosen. The following will be found a good selection of the best and most up-to-date varieties for general purposes:—

FOR BUTTONHOLES.—Catherine Mermet, T.; The Bride, T.; W. A. Richardson, N.; Queen Mab, China; Madame Hoste, T.; Liberty, H.T.; General Jacqueminot, H.P.; and Sunrise, T.

FOR SPRAY AND BOUQUET WORK.—Madame Abel Chatenay, H.T.; Kaiserin Augusta Victoria, H.T.; Mrs. John Laing, H.P.; Bridesmaid, T.; La France, H.T.; Niphetos, T.; Isabella Sprunt, T.; and Liberty, H.T.

FOR VASE WORK AND TABLE DECORATION.—Fran Karl Druschki, H.P.; Caroline Testout, H.T.; Kaiserin Augusta Victoria, H.T.; Belle Siebrecht, H.T.; Madame Viger, H.T.; Mildred Grant, H.T.; Papa Gontier, T.; Souvenir de Pierre Notting, T.; White Maman Cochet, T.; and Sunrise, T.

FOR CONSERVATORY AND HOUSE DECORATION.—Souvenir de Catherine Guillot, T.; Souvenir de S. A. Prince, T.; Souvenir d'un Ami, T.; Enchantress, T.; Dorothy Perkins, Wich; and Crimson Rambler, Mult. Climb.

There is such an unlimited number of varieties suitable for exhibition purposes that it is almost impossible to give a list of the best sorts. The plants should be taken into the house at least a fortnight before they are pruned and started into growth, this enables the soil to get thoroughly dry. Full air and no heat should be given to the house during this period, and after the plants have become thoroughly dry they should be pruned.

If H.P.'s and the slower growing varieties are to be grown in the same house as T.'s, H.T.'s, and the more excitable or quicker growing varieties, the H.P.'s should be pruned a fortnight to a month (according to the time of year) earlier than the Teas, H. Teas, &c., if they are all required to be in bloom at the same time. The subject of pruning is a difficult one to deal with, as one should understand the habit and character of each individual variety to prune successfully. The pruning can be divided into three sections, the strong, medium, and weak growing varieties.

The strong growing varieties, such as H.P.'s, should have all the weak shoots taken out clean, and the strong shoots should be cut back to about four eyes, taking care to leave a good, sound bud at the top, pointing outwards. The medium growing varieties, viz., H.T.'s should have the weak shoots spurred back to two or three eyes from the base, and the strong, robust shoots should be shortened back to from three to six buds, according to their strength; the stronger the shoots, the more buds may be left. The weak growing varieties, as Teas, will require very little pruning, except the unripened tops of the shoots, which may be cut back to a sound eye. If, however, a strong shoot is thrown, as is the habit of some varieties of Teas, it should be cut back from three to six eyes.

After the pruning has been done, it is time to turn on the heat, gradually at first, and increasing it as the plants break into growth. Full air should be left on the house, avoiding draughts, until about 1 in to 2 in of growth have been made, then the air must be taken off at nights, gradually increasing the heat until an average temperature of 55deg is reached, and this must be maintained. The Rose is essentially an air and sun loving plant, and if too hot or too close an atmosphere is maintained, the blooms will come small and thin, and will be indifferent in colour, so over-rapid growth must be avoided.

When starting the plants water must be withheld from the roots for a time, until they have broken into growth, which is excited by frequent syringing with clean, chilled water; and when the growth has once started care must be taken not to let the ball of soil get thoroughly dry. On the other hand, over-

watering is very detrimental, and is apt to bring on black mildew, so obviously the question of proper watering is a very important one. Once the plants have begun to grow freely, they will require very little attention except watering, syringing, and proper manipulation of air and heat until the buds begin to appear.

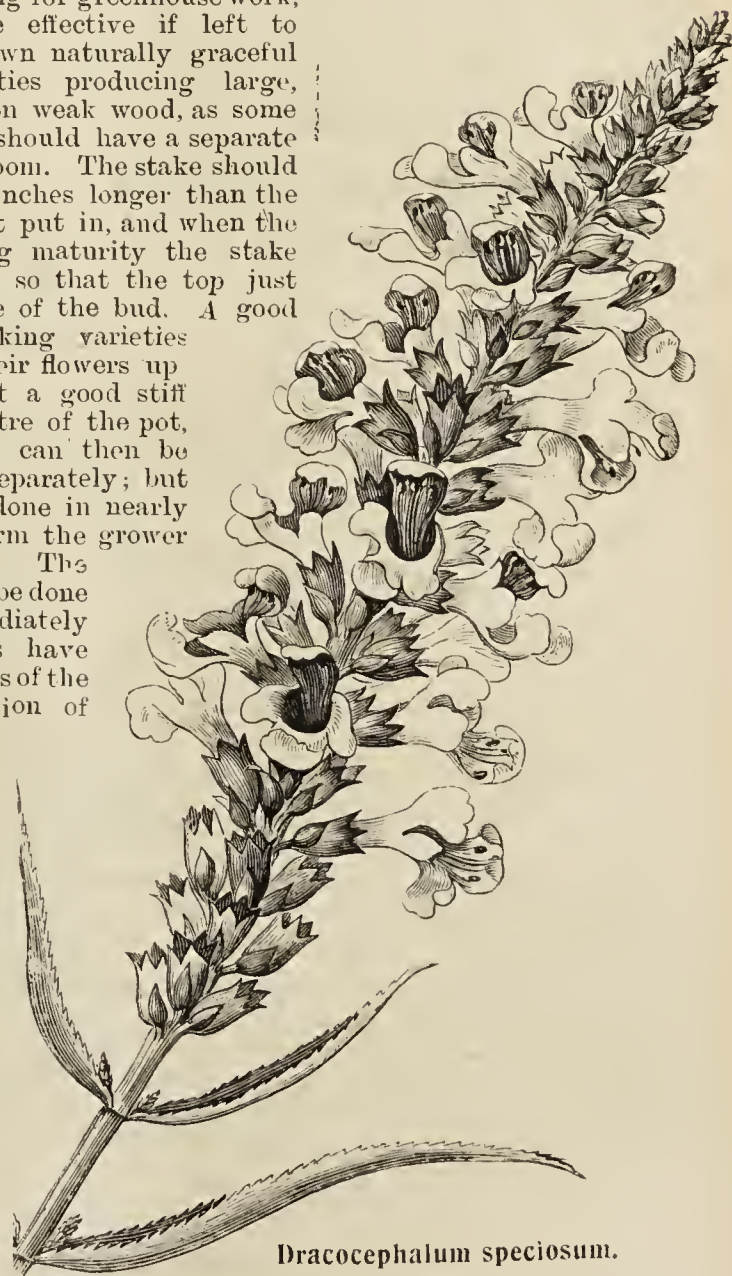
About the time the buds are appearing, the plants should be looked over very frequently, and the points of the shoots examined to see that the Rose maggot (*Tortrix Bergmanniana*) is not in evidence. Should it be making its appearance, the terminal leaves of the shoots will be curled up and a fine web woven round the leaves. These should be opened, and the maggot will be found inside. It is of a pale greenish hue, spotted black, and is easily passed unobserved, therefore it is necessary to make a close inspection, and all maggots found should be picked off and destroyed. This is the most effectual method of dealing with them. Should the maggots be left, they will bore a hole into the heart of the newly-formed buds, and thus ruin the flowers.

Some varieties throw a single flower on each stem, while others throw up a cluster of buds. The plants should be gone over as soon as the buds are formed, and where two or more buds are formed on one shoot they should all be carefully picked off except the largest or terminal bud; for if all the buds are left, the result will be a cluster of indifferent blooms instead of one good, bold specimen.

Staking is a subject which depends largely on the taste of the grower. Some of the stronger, upright growing varieties require no staking for greenhouse work, and look more effective if left to assume their own naturally graceful habits. Varieties producing large, heavy blooms on weak wood, as some of the Teas do, should have a separate stake to each bloom. The stake should be left a few inches longer than the shoot when first put in, and when the bud is reaching maturity the stake may be cut off, so that the top just reaches the base of the bud. A good method of staking varieties which carry their flowers up right is to put a good stiff stick in the centre of the pot, and each shoot can then be looped up to it separately; but staking can be done in nearly any shape or form the grower decides upon. The staking should be done at a time immediately after the buds have set. This allows of the equal distribution of the blooms around the plant, thus attaining a more symmetrical effect.

Climbers I have not as yet mentioned, as they are not quite so well adapted for pot-work as dwarfs. They generally demand more room than can be afforded to them under glass. The pruning is very simple, the unripened tips of the main shoots being cut off, and all the laterals spurred in to two or three eyes. In starting climbers it will be found advantageous to place the plants horizontally on the ground to start them. This stops the flow of all, or the major part, of the sap to the top of the shoots, and causes breaks to form at the base and all the way up the shoots. When about two inches of growth has been made, the plants may be set upright again, when they can be trained up a good stout stake to form a pillar, or round three or four short stakes to form a balloon, and are very effective in this form. Some of the climbing polyanthas and Wichuraianas are well adapted for house decoration when trained in pillar or arch form.

After the plants are well set with buds, feeding will be found very beneficial. The plants should not have any artificial



Dracocephalum speciosum.

(See page 275.)

* A paper read before the Feltham, Bedfont, and Hanworth Horticultural Mutual Improvement Society, by Mr. Benjamin E. Nettlecon, Rose grower to Messrs. T. S. Ware (1902), Ltd.

manure or stimulants afforded them until the buds are set, or they will go away into strong growth without flowering. One of the best stimulants is a liquid manure, composed of a pailful of cowdung, a quart of soot, and from 25gal to 30gal of water. The dung and soot should be put in an old Potato sack, so as to keep the pieces of straw, &c., out of the liquid, and the whole should be well stirred. This mixture may be used at the rate of one quart to a three-gallon can of clean water, and the plants should be watered alternately with the liquid manure and clean water until the blooms have reached perfection. Guano or Clay's Fertiliser, used at the rate of one tablespoonful to three gallons of clean water, about three times a week, will be found the best artificial stimulant. Great precaution must be taken not to use too much stimulant, or weak, undeveloped flowers will be the result, through the plant turning unhealthy.

This treatment will be found to cover the general routine of Roses in pots, but, before concluding, there is another class of Rose not generally used for pot work, and upon which a few remarks would not be out of place, viz., China or Bengal Roses and dwarf polyantha Roses. This class of Rose should be grown in pots more than they are at present because of their adaptability for decorative purposes, easy culture, and floriferousness. One year old plants should be secured either from the open ground, or in 48-sized pots. If already in pots, a little top-dressing and attention to the crocks to see the drainage is in good condition is all that is necessary in the shape of potting. Should the plants, however, be from the open ground, they should be potted either into 48's or 32's (6½ in pot), and the same treatment as described for maidens is applicable in this case. The plants will require very little pruning, except that the weak shoots may be cut back short and the stronger ones left four to six eyes. Being very dwarf, they will stand amongst the larger pots and take up very little room. The same treatment throughout as before described, is the best, except the staking, which is found unnecessary. These will afford a succession of blooms throughout the whole season, and all the attention necessary is watering, syringing, and the picking off of the dead blooms. The flowers in these classes range in all shades from white and delicate pink to apricot and deep crimson.

Rose Show Fixtures in 1904.

- June 15 (Wednesday).—York†.
 „ 27 (Monday).—Isle of Wight (Ryde).
 „ 29 (Wednesday).—Chippenham and Farningham.
 „ 30 (Thursday).—Canterbury and Colchester.
 July 2 (Saturday).—Sutton (Surrey).
 „ 6 (Wednesday).—Temple Gardens (N.R.S.), Croydon, Ealing, Ipswich, and Southampton*.
 „ 7 (Thursday).—Chipping Norton, Norwich, and Walton-on-Thames.
 „ 8 (Friday).—Brockham.
 „ 9 (Saturday).—Warminster and Windsor.
 „ 12 (Tuesday).—Wolverhampton†.
 „ 13 (Wednesday).—Formby, Reading, Stevenage, and Thornton Heath.
 „ 14 (Thursday).—Bath, Eltham, Helensburgh, and Woodbridge.
 „ 15 (Friday).—Gresford and Ulverston.
 „ 19 (Tuesday).—Saltaire and Tibshelf.
 „ 21 (Thursday).—Halifax.
 „ 27 (Wednesday).—Cardiff* and Newcastle-on-Tyne†.
 Aug. 13 (Saturday).—Sheffield.
 Sept. 20 (Tuesday).—Royal Horticultural Hall, Westminster (N.R.S.)

* Shows lasting two days. † Shows lasting three days.

The above are the only dates of Rose Shows, or of other horticultural exhibitions where Roses form a leading feature, definitely fixed, that have yet reached me. I shall be glad to receive notice of any other Rose Show fixtures for publication in the next list, which will appear early in May.—EDWARD MAWLEY, Rosebank, Berkhamsted, Herts.

Acalypha hispida (Sanderiana).

What a charming subject is the above from the decorator's point of view! Well-grown specimens, with a stem 3ft or 4ft high, furnished with its pretty "catkins," 14in to 18in in length, are most effective for room decoration. This (as with all other plants for decoration in rooms) is more especially true when a position can be obtained where the colouring of the general arrangement is somewhat in harmony with the plant's own colour. Its handsome leaves are perfect for the ample display of the "catkins." It lasts in good condition for a considerable time in the house, and being so easily grown, ranks high as a plant for the purpose. It needs a good loamy compost and liberal feeding. Keep a sharp look out for insects, it being very susceptible, like all the members of the genus, to thrips and red spider. Fortunately, however, these are easily kept at bay, for it simply revels in a free application of the syringe during the growing period.—E. D.



Cypripedium x Beekmani.

This bold flowered hybrid orchid was awarded a first-class certificate when staged by Mr. R. Briggs-Bury, of Bank House, Accrington, at the meeting of the Royal Horticultural Society on February 23. It is a large flower and a very handsome one. *C. villosum* seems to have been one of the parents, but the record in this respect was not given. The pouch is brownish-red, the petals the same, lined greenish yellow, while the dorsal sepal is pea-green, spotted with purple.

Cultural Notes: *Cœlogyne cristata* varieties.

There is a good deal of difference in the habit of the several varieties of *Cœlogyne cristata*, some of the late flowering varieties especially getting very untidy by the time the blossoms are past. These may be taken in hand now and put in order. There are often old leafless pseudo-bulbs that may be removed entirely, and the younger leads laid in their place, adding fresh compost when necessary. Where they are very thick on large old specimens useful pieces may be cut out and potted or basketed separately, a healthy young stock being thereby maintained. A third of leaf soil is an excellent addition to the usual compost for this orchid.

Other varieties grow very closely together, and the pseudo-bulbs get so tightly wedged that they cannot swell properly. In this case it is best to shake them right out every few seasons, when the removal of the older bulbs is easy. These also are not so susceptible to injury as those having the bulbs further apart upon the rhizome, but more care is needed not to injure the latter, for it is often difficult to see where the rhizome ends and the pseudo-bulbs begin. After disturbance at the roots a little extra warmth, moisture, and shade assist them to recuperate, and the plants may at the same time be freed of insect pests.

It is customary in some collections to repot Anguloas now, while other growers prefer to leave them until after the flowers are past. When they are not in bad condition at the roots, and only slight disturbance is necessary, they may be attended to now, as this will have no ill effect upon their flowering; but, in the case of plants that need shaking out, it is better to leave them until the flowers are over. But in the latter case no time must be lost, and as soon as the flowers begin to fade see to them at once. This is on account of the young leads beginning to emit roots directly the flowers are over, and injury to these is almost unavoidable when potting.

A compost consisting of equal parts of peat, loam, chopped sphagnum, moss, and leaf mould suits the roots of these plants; also *Chysis*, *Catasetums*, *Cynoches*, *Lycastes*, and *Mormodes*, all of which will now or very shortly need attention. *Thunias* are now rooting freely in their new pots, and will need ample supplies of water. An unshaded end in a hot moist house is the best place for these sun-loving plants; they never flower satisfactorily in shade, simply growing on to an extraordinary length of useless stem. A rise in temperature is necessary now all round, careful ventilation and watchfulness against bright bursts of sunshine.—H. R. R.

Orchid Sale at Wilmslow.

A sale of orchids belonging to Mr. E. Ashworth, a well-known exhibitor, of Harefield Hall, Wilmslow, took place on March 23. Buyers from London, Liverpool, Manchester, and other centres were present. Mr. Ashworth has one of the finest and most valuable collections in the country, and some sharp bidding took place for the best varieties. The highest figures included 340 guineas for an *Odontoglossum crispum*, remarkable for its colour. This was said to be a record price secured under the hammer. Another plant, *Cattleya guttata* Prinzi, a white form, fetched 200 guineas.

The Chelsea Cedar.

Little notice seems to have been taken of the death of one of the large Cedars in the Physic Garden at Chelsea, which, having survived there since it was planted in 1683 with three others, may surely claim a passing word of regret. It appears that the tree had been dead for some time, and although the authorities were loth to have it removed, the fact that a dangerous fungus which had developed on it, was gradually spreading to other trees, seemed to make its removal imperative. A correspondent has taken exception to the destruction of what he rightly terms "such an imposing relic" without a word of notice; but we think the Committee of Management now controlling the Physic Garden may be relied upon only to have taken this course when they found it to be inevitable.

Book Notices.

The Fruit Garden.*

In the preliminary survey of the contents of this book, given in last week's *Journal*, it was stated that Mr. James Hudson had contributed an article on

FRUIT TREES IN POTS.

He says: "In advocating the culture of fruit trees in pots, it must not be supposed that this mode of treatment is intended to supersede planted out trees, whether under glass or in the open air. It is rather an addition to the older and more general system, and by its means very early crops of fruit can be more easily secured—such, for instance, as Figs, Nectarines, Peaches, Cherries, and Plums; the same structure will permit of two or even three crops being produced within it in twelve months. Again, under pot culture the finest dessert Plums are much more satisfactory. The latest Peaches and Nectarines, if not under the most favourable conditions in the open air, are of much better flavour when grown in pots and ripened under glass. To the connoisseur of dessert fruits, Cox's Orange Pippin, or Ribston Pippin Apples, for instance, from pot trees, are of superior finish and the finest flavour. In some districts the culture of the best dessert Cherries on walls or as bushes is practically a failure. If grown in pots in an absolutely cold house, it is astonishing what crops may be secured. It is often said, and with much truth, that it takes years to convert a Briton to anything really novel and distinct, and the culture of fruit trees in pots is a case in point. If anyone requires an object lesson in this direction, a visit should be paid to nurseries where this mode of fruit culture is practised.

THE BEST HOUSES.—The most convenient houses, and also the best for the trees, are span-roofed ones; these afford a maximum of light and the best ventilation. A useful size is that of about 18ft wide, with a central walk (Strawberries in pots can be grown on shelves above the walk). This house may be 5ft high at the sides, and 10ft high at the apex of the roof.

For some purposes and for large trees it is better in many respects to arrange for houses of greater width and two walks—say, 24ft wide, 6ft high at the sides, and 12ft to the roof centre. The length can be regulated as may be necessary, a very convenient length being 30ft for one division. A large house without a division is not advisable in private gardens, as a different temperature in each is often desirable.

In the smaller house the pipes can be arranged at the sides, whereas in the larger it is better to provide for at least two pipes around the central bed. No staging is necessary; if some trees need raising it can be done with inverted flower pots. All the rain water possible should be conserved in tanks, the best position for which is under the beds upon which the trees stand. One standard size of roof glass should always be used—say, 15in by 20in—and for the sides above the ventilators only 21in squares, and of good quality. The top ventilation should be by means of rising lights, the side and end ventilation by means of wooden shutters. These side ventilators should always be hung at the bottom rather than at the top. This is the method adopted in nurseries, and in the Gunnersbury Gardens, and is found to answer well; it prevents cold currents of air from rush-

ing in during rough weather in the spring. These houses need not be of elaborate construction, nor are they costly. A great saving is effected in brickwork, but little being required in their construction.

For retarding fruit so as to extend the season, a small north house will be found very useful. Under the pot system of culture it is always possible to keep the trees close together until after flowering, but as soon as growth commences they are best placed wider apart. Thus trees sufficient for two houses may be kept in one division until the embryo fruits are formed, thereby effecting an economy in both space and fuel.

CULTIVATION—CHOICE OF TREES.—The best time to commence the culture of fruit trees in pots is in the autumn; then the wood is well ripened and all active growth has ceased. Trees two or three years old, established in pots, are the best. These should be bristling with spurry shoots and fruit-buds. To grow fruit trees in the open ground and sell them after one year's pot culture is not, in the case of Nectarines or of Peaches, a safe plan to adopt. It may answer for Plums or Cherries, Pears or Apples, but even then the trees are not so satisfactory as those which had been in pots for two seasons. To attempt to obtain fruit from trees lifted from the open ground in the previous autumn is absurd. As a rule, the size of pots in which the trees are grown by the trade varies but little, those of 9, 10, and 11 inches diameter being generally used. If early forcing is contemplated, the trees should be repotted at the beginning of October. The later trees ought to be potted by the end of October, otherwise autumnal rains will render the work inconvenient.

WATERING, &c.—After potting, water the plants well, and occasionally afterwards, according to the weather. Trees potted early in October require somewhat careful watching if the weather is fine and dry. When warm and sunny, use the syringe, in order to prevent the wood from shrivelling, which ought not to take place in the slightest degree. I have known this to occur and the trees to suffer in consequence during the ensuing season. Trees potted early will still retain a fair portion of foliage, thus enforcing the need of syringing. Early in November trees intended for forcing should all be housed, not because they are tender, but to prevent the soil becoming too

wet. Even then, if fine and dry, the syringe may still be used; after forcing has commenced, little water will be required at the roots until the buds are swelling. What has to be guarded against is actual dryness at the roots. Trees not forced at all can be left outside all the winter; the pots should be protected from frost, however, by a covering of stable litter, the plants standing close together, and either upon boards or bricks, so that during heavy rainfall the water can pass away freely. They will not require any more attention until the buds are upon the point of expanding in the spring (unless it is to guard against the depredations of birds). The Peach and Nectarine trees are then placed in a cool house for flowering, and afterwards moved into other houses as opportunity occurs. The Plums, Pears, and Apples with us remain outside under a temporary shelter, just sufficient to keep off frost and wet. The forced trees do not, as stated above, need much water for some time. Their demands will, however, increase as growth progresses. The secret of success lies in avoiding the two extremes of drought and excess of moisture. When the fruits are swelling quickly and wood growth is active, the trees will require careful attention. If the weather is fine and warm, watering is a matter of daily importance; the trees will require water frequently twice in the day when the fruits are almost fully grown. Rain water is preferable both for watering and syringing."



Cypripedium × *Beckmani*.

* "The Fruit Garden," by Geo. Bunyard, V.M.H., and Owen Thomas, V.M.H. London: Published at the office of "Country Life," Southampton Street, Covent Garden, W.C., 1901. Price 21s.

The foregoing extract serves to show the practical treatment of the subjects dealt with. Some interesting facts about the Figs grown in the open air at Worthing, Sussex, are given, and it is stated that practically all the green Figs in Covent Garden Market come from Worthing. The Melon furnishes Mr. Owen Thomas with a subject which he knows from end to end, and Mr. H. H. Thomas furnishes some facts about the dates of flowering in the case of different varieties of the Strawberry when forced.

Mealy Bugs and Scale Insects.

(Concluded from page 157).

When we look at the quantity of honeydew emitted by many of the Coccidæ we are not surprised that the insects prove very exhaustive to young or tender plants. Again, this curious substance, which is expelled about the end of April and onwards, has also a hurtful effect in checking respiration; it is discharged both night and day, most in the day. Mr. Newstead put under special observation 100 females of *Pulvinaria Vitis*, and found they expelled about eight drops each between 6 a.m. and 6 p.m. It may be presumed they would do the least harm (out of doors) during a moist season. Numerous insects are attracted by this sweet substance, the hive and other bees, wasps sometimes, and a variety of flies. Ants are not so enthusiastic after it as they are in seeking the aphid milk, but they have been seen carrying off Coccidæ of various sizes.

Some reduction is made in the hosts of Coccidæ by the attacks of their natural foes, to which they can offer no resistance; several birds fancy them. The tits are often noticed to devour scale, and the irrepressible sparrow includes them in his long list of foods. Probably they attract a few of the beetles that are partial to sweets, but we get most service from tiny and active flies of the Chalcids tribe. A good description is given by Mr. Newstead of the proceedings of a specimen he watched. He says: "When first seen, the parasite was running swiftly from place to place, evidently searching for a suitable host; its antennæ were bent downwards, and were moved up and down rapidly and alternately, the tips each time touching the path of the insect. Many Coccids were examined, and when a suitable one was found the parasite turned its head towards the anterior extremity of the Coccid, and, resting with all its feet upon the body, inserted its ovipositor into the centre of the thorax. It then slowly moved its abdomen up and down, and apparently laid its eggs in the puncture. The parasite then withdrew its ovipositor, and, turning round abruptly, again feeling its way with the antennæ, seized the lips of the wound made, and distinctly closed them." Certainly a useful insect, to which we would gladly give encouragement.

By careful research, Mr. Newstead has discovered the males of several species which had been unknown, and whose existence was doubted, though indicated by the appearance of eggs. As with aphids, the viviparous form occurs without male intervention, hence its abundance. Considering the many species imported, it seems desirable to subject exotic plants from warm regions to a sort of quarantine.

Journal of the Board of Agriculture.

The March volume of this publication (price 1s.) contains articles on the subjects: Agricultural Correspondents; Oil-engines for agricultural purposes; weeds and their suppression; bee-keeping for small farmers; minor ailments of poultry; imports of agricultural produce in 1903; agricultural and miscellaneous notes; harvest and crop reports; parliamentary publications; prices of live stock; prices of agricultural produce.

Insecticides.

(Continued from page 230.)

The insecticide hellebore is the powdered rhizome of a plant called white Hellebore (*Veratrum album* or *viridis*), and is a vegetable poison, but much less dangerous than the mineral arsenical poisons, and kills both by contact and by being eaten. It acts as a poison on insects, and for this purpose it should be used freshly ground, as it is apt to lose its virtue by keeping. The white hellebore powder may be applied as a dry powder by means of a dredger or bellows apparatus, dusting over the bushes or trees while the foliage is damp; or in water, preferably along with size, 1lb of size being dissolved in 2galls of hot water, and to this adding 1lb of hellebore powder.

When the water becomes nearly cold, mix thoroughly, and add enough cold water to make 16galls, applying with a water-pot, syringe, or sprayer, and at the end of a week wash off

with clean water. White hellebore powder is chiefly used for destroying Gooseberry or Currant sawfly larvæ or caterpillars, and for slugworms generally.

HOT WATER.

At a temperature of 130deg to 135deg most insects, a term commonly applied to all animal pests, from vermes (worms), mollusca (slugs), crustacea (woodlice), myriapoda (millipedes), insecta (insects), up to arachnida (mites), succumb, whether in the soil or air, hence hot water is a very old, simple, and effective insecticide. Gardeners usually treat plant and fruit houses at the dormant time of year with hot water before commencing cleansing operations, as it softens dirt, better, destroys coniferous growths, eggs, larvæ, and hibernating pests, so that the good results following are incalculable, cleanliness being a sure road to health.

Outdoors, Cabbage caterpillars yield to sprinkling with hot water, so hot, indeed, as to be near boiling point when placed in the watering-can, and yet not too hot when it reaches the Cabbage leaves through a fine rose. The temperature, however, should not exceed 130deg to 135deg when the water falls on the foliage. Soil is effectively sterilised, that is, freed from contained insects and fungal germs by treatment with boiling hot water weeds and weed seeds being also killed. The term sterilisation, however, is a misnomer, for the soil is not really sterilised, but simply freed from pests, the micro-organisms known as nitrifying bacteria not being materially impaired in vitality, the soil remaining fertile, which is not always the case when steaming and charring is had recourse to for the so-called sterilisation. The bacteria are not capable of resisting a temperature of over 180deg without prejudice. Growers, therefore, must exercise judgment in the use of hot water, always securing safety of plant and soil fertility.

HYDROCYANIC ACID GAS.

This is generated with potassium cyanide and sulphuric acid, and the fumes are fatal to all animal life. Outdoors the fumigation is effected by placing over the bushes or trees a tent of some closely woven material, such as 8oz duck or drilling, oiled and painted black if treatment is made in daylight. The edges of the tent are held down by a few shovelfuls of earth. Fused 98 per cent. potassium cyanide 1oz, sulphuric acid 1 fluid ounce, water 2 fluid ounces, are used for generating the gas in proper amount for 180 cubic feet of space enclosed.

The water and sulphuric acid are placed together in an earthen vessel in the order named (always pouring in the sulphuric acid slowly on the water, not this on the sulphuric acid), and the vessel is placed under the tent. The potassium cyanide is then dropped in, and the operator quickly withdraws from the tent and closes the opening. The fumigation is performed similarly under glass, and is best performed at night. Bright sunlight is liable to cause injury to the foliage, therefore the use of painted black material is imperative when operating in the daytime. About half an hour suffices to destroy the pests, when the tent can be removed to other quarters. Always exercise the greatest care in applying this method of treatment, as the gas is very fatal.—EXPERIENCE.

Market Gardening Notes.

Referring to Narcissi, a daily paper observes: "In singles, Golden Spur takes the lead. It has a perfectly expanded trumpet of a clear yellow colour, and is the most fashionable Lent-lily grown. Princeps is another fine single. Its perianth is sulphur white, its trumpet yellow, and the contrast formed by the two is most pleasing, yet Golden Spur is worth 50 per cent. more than princeps. A striking form of Lent-lily is seen in the one named after our great actor Henry Irving. It is plentiful this season, and is being sold from 3s. to 4s. a dozen bunches wholesale. It is worth more than princeps. Obvallaris, the Tenby Lent-lily, is also meeting a ready demand. It is the cheapest of all the British grown "Daffs" on sale just now. Sir Watkin, the magnificent incomparabilis, is in its prime. This "Daff," with Golden Spur and the large, old-fashioned double telamonius, makes from 5s. to 6s. a dozen bunches first hand. Of the latter enormous quantities are being sold daily.

A few greenhouse Strawberries from the Worthing district made their appearance at the Newcastle Green Market last week. They fetched from 1s. 6d. to 2s. 6d. per basket. Oranges are fairly plentiful just now, but they have been about 1s. per box dearer. Onions are from 1s. to 2s. per box dearer, and Parsley has been much dearer of late, and if the weather does not improve it looks as if it will be very dear at Easter. Italian Canflowers are beginning to arrive. They are selling at 3s. 9d. to 4s. 6d. per basket of 18. Cucumbers realise 5s. to 7s. per dozen. Sprouts are nearly done. Best Canadian Apples are selling at 20s. to 26s. per barrel. Californian Newtowns, 9s. 6d. to 12s. 6d. per box. Flowers are fairly plentiful, particularly those which are consigned from the Scilly Isles and Lincolnshire. Large supplies of double Daffodils are arriving.

NOTES

NOTICES

Royal Horticultural Society.

The next meeting of the committees will be held on Tuesday, April 5, in the Drill Hall, Buckingham Gate, Westminster, 1-5 p.m. A lecture on "Villa Gardens" will be given by Mr. H. P. C. Maule. At a general meeting held on Tuesday, March 22, fifty-six new Fellows were elected, making a total of 407 elected since the beginning of the present year.

Weather in the North.

The weather of the past fortnight has been varied, with a predominance of dull days, an occasional wet night, and, during the latter week, frosts of from 2deg to 5deg. Occasionally a fine bright day occurred, and as there has been but little rain, outdoor work has been pushed forward both in field and garden. Monday was dull and rather cold, with occasional drizzle.—B. D., S. Perthshire.

***Arrhenatherum erianthum* at Kew.**

This is a pretty grass, grown in 5in pots in the greenhouse at Kew, and seen to splendid effect beneath floriferous plants of *Begonia Gloire de Lorraine*. One would not be outraging truth to say that the young plants with their upright blades of green and white striped growths resemble the Cocksfoot (*Dactylis*) grass in its young, or freshly started stage. At any rate, it is a very charming subject, the white and green striping being very clear. This plant seems to form small, tuberous growths on the soil, these doubtless taking the place of a rhizome.

British Birds.

Mr. C. E. Pearson sent some rough notes with reference to the articles on British birds. Pressure of work at the time prevented him explaining these more fully, but in a second note he says: "If you will refer to the article again you will find that your correspondent is evidently in error as to the twite, as he uses the scientific name for it. The twite is a mountain bird, generally found among the Heather, and is probably unknown to the bulk of your gardening readers, the bird intended in his remarks being the common or brown linnet. With regard to the eggs of the sand martin, many white eggs occasionally show faint spots, but the normal egg of this species is pure white.—CHAS. E. PEARSON."

Proposed Rose Show in Bristol.

A meeting of the committee recently appointed to hold a Rose show in 1905, in aid of the Bristol and Bath Auxiliary of the Gardeners' Royal Benevolent Institution, was held at Messrs. Garaway and Co.'s offices, White Ladies' Road, Mr. W. A. Garaway in the chair. Mr. Geo. Harris read a list of those who had promised to become guarantors. Mr. W. Ellis Groves, secretary of the Bristol Chrysanthemum Society, and Mr. Kitley, of the Durdham Down Nurseries, were appointed joint secretaries. It was resolved to affiliate with the Royal Horticultural and National Rose Societies, and also to issue a circular asking for vice-presidents, guarantors, and subscribers. The place in which to hold the exhibition and the preparation of a schedule of prizes were postponed till the next meeting.

Cassell's Popular Gardening.

Part I. of this work is published this week. The price is 7d. net per part, and it is hoped to complete the publication in 24 fortnightly parts. The sub-title on the front page states it to be "an illustrated cultural guide for amateur and professional gardeners." Coloured plates are to be included, and over 1,000 illustrations. Part I. contains a variety of short, popularly-written articles and notes, and the general arrangement follows that adopted by weekly gardening journals. First there is a section devoted to herbaceous hardy plants; then follow Roses; next the vegetable garden; afterwards the greenhouse, conservatory, stove; flower garden and lawn, orchids, Chrysanthemums, &c., &c. Amateur gardeners of different tastes ought to find something to their liking in a book so varied. The size is the same as Cassell's "Dictionary of Gardening."

Hanley Horticultural Fete.

The exhibition and fete of the Hanley Horticultural Society will take place this year on July 22 and 23. We are informed that the event last year was a success in every way.

Feltham Gardeners.

The Feltham, Bedfont, and Hanworth Horticultural Mutual Improvement Society met on Wednesday, March 23, and Mr. Dobin gave a very interesting lecture on wild flowers. He also showed a great number of coloured plates of British wild flowers. The lecture was keenly appreciated by those present.

***Eschscholtzia californica*.**

Eschscholtzia californica, or Californian Poppy, is widely grown, but it might be more so still. There is no golden-yellow colour to equal its, even amid the hundreds of summer flowers in our gardens; none more intense or brilliant under the effect of the sunshine. But though golden-orange is the colour of the species, there is a host of garden forms from it, their flowers being white, pinkish, or pale yellow. Seeds may be sown in the month of May in the open borders on spots where the plants are required to bloom.

Lectures on Advanced Botany.

Dr. D. H. Scott concluded his course of ten lectures on "The Morphology and Affinities of the non-Filicinean Families of Vascular Cryptogams," given at University College on Friday last. The lecture was on "The relation of Lycopsidea to the fern-phyllum. The position of the Ophioglossaceæ: criticism of the theory attributing Lycopodineans affinity to this family. Summary of the evidence acquired as to the inter-relationships of the Lycopsidea and their position in the vegetable kingdom. The lectures have been well attended.

To Encourage Fruit Growing.

The East Sussex County Council has decided to establish in various parts of the county experimental plots for the cultivation of fruit under the direction of a horticultural expert. At first the plots will be a quarter of an acre in extent, and Rye, Groomsbridge, Frant, East Grinstead, Hailsham, Heathfield, and Mayfield are mentioned as among the villages where the experiments will be initiated. It is believed that by judicious treatment of the soil fruit-growing in Sussex can be made a flourishing industry.

Double Violets from Compton Castle.

Writing from The Gardens, Compton Castle, North Cadbury, Bath, Mr. G. Gregory says: "Herewith I enclose you a few Violet blooms. "Coolerown" is the name I had with the few cuttings I began with. I think the flowers very good considering no special effort was made in their culture. I should like to know your opinion of them through the medium of the *Journal*. [Large double flowers, richly coloured, and most delightfully scented. They are exceptionally vigorous, and the plants evidently enjoy their present position.—Ed.]

Oranges and Pomeloes.

People are being strongly urged by the medical papers to eat Orange fruits. They have excellent medicinal qualities, but are inferior in tonic qualities and insipid to those who have acquired a taste for the Pomelo, or Grape-fruit. The latter is, however, only slightly known in this country, and not all who know the fruit prepare it properly. It should be cut in half transversely, the bitter membranes removed, sugar, and, if desired, some sherry added, cooled upon ice, and taken from the skin with a spoon. It is most delicious in the morning before breakfast.

New Rose, Sir Thomas Lipton.

An everblooming pure white hybrid rugosa Rose. It belongs to the same class as the New Century Rose. Flowers are very double, of large size, and exceedingly fragrant. Blooms very full in the early summer, and continues to bloom all through the summer and autumn. It has handsome glossy green foliage; is very hardy, and is a desirable Rose for the garden, especially so for the cemetery, and also for planting with shrubs on the lawn. The fine foliage alone gives the bush a very handsome appearance. The Conard and Jones Company, West Grove, Pa., U.S.A., are offering it.

British Birds.

(Continued from page 228.)

THE REDBREAST OR ROBIN (*Erythacus rubecula*) has earned for itself golden opinions by its fearless conduct from all kinds of men. I wonder if they have experience of its depredations in a house of ripe Grapes, of its love of Currants and Cherries? "Babes in the wood" stories go a very little way then as regards its protection. Its food, however, consists principally of worms, ground insects or their larvæ, small slugs, and other mollusca, so that it well deserves the crumbs so plentifully bestowed in winter time.

THE BLUE TITMOUSE (*Parus cæruleus*) is so resistive when captured as to have acquired the name of "Billy biter." It is common and well known to subsist chiefly upon insects, especially small caterpillars and grubs, moths, aphides, &c. Indeed, it is very fond of fat, bits of meat being greedily eaten in winter when it also feeds upon eggs and pupæ of insects, clearing Apple trees of mussel scale in some instances. For nine months of the year it profits cultivators by destroying insects, and as the brood is fed, from eight to fourteen, an enormous number of caterpillars and grubs is required in rearing the young, the parent birds having been observed to feed the young 470 times in one day.

In one instance only have I noticed the young fed on Peas taken from the pods, the nest being in a wall near by. It is very fond of Sunflower seed, which it takes from the heads, also of Thistle and Beech nuts. The greatest mischief is done by this bird to Pears and Apples, it pecking holes in the fruit at the stalk end, and the injured fruit speedily decays. Only protection by means of wire gauze contrivance can prevent such injury.

THE GREAT TITMOUSE (*Parus major*) is not nearly so common as the "blue," but frequents gardens, orchards, copses, and woods in fair number, doing an immense amount of good by destroying pests, and is not so prone to peck Pears and Apples as the blue titmouse. It, however, may take a fancy to Peas in the pod, and then the quantity a pair carry off to feed their young is enormous. In the winter it varies its feeding on eggs and pupæ of insects with tit-bits from near dwellings, and seeds of various kinds. It is also fond of hive bees.

THE NUTHATCH (*Sitta cæsia* or *europæa*) rivals the creeper and woodpecker in its activity in running up and down the trunks of trees searching for and feeding upon insects, hence a very desirable and fearless bird. In due season it takes to cracking nuts. It is also fond of acorns and beechmast.

THE BULLFINCH (*Pyrrhula europæa* or *rubicilla*) frequents hedges, copses, and woods more than pleasure grounds and gardens. It builds in hedges and copses, and though some insects may be appropriated in breeding time, the food consists of buds and seeds. In the months of February, March, and April the bullfinches leave their sylvan retreats, usually in pairs, in the daytime for feeding purposes, attacking the flower buds of species of *Prunus* and *Pyrus*, especially Siberian and other Crabs, and in gardens and fruit plantations plays havoc with the blossom buds of Plum trees, Gooseberry, and Currant bushes, and occasionally those of Pears and Apples.

In copses and woods it feeds in springtime upon the buds of the Blackthorn, Birdcherry, Crab, Hawthorn, and sometimes Larch and Beech. The remaining nine months of the year it subsists chiefly upon weed seeds, such as Docks, Knapweed, thistle, &c., practically without offence to foresters, farmers, and gardeners.

A pair only of these birds do immense mischief, and I have known all the trees and bushes in a large garden and orchard rendered practically fruitless through bullfinches taking the buds. The bullfinch is readily caught in a trap cage with a "call" bird in the autumn and early winter, or it may be secured with birdlime. Captured in either of these ways, the beautiful plumage of the birds assures for them a ready sale. Shooting the birds is a bad practice, especially on the bushes or trees, as the shot does serious injury to twigs and branches. Protecting the buds is much preferable. Fruit cages—wire-netting—are very efficient for preventing birds taking the buds in winter and spring, and the fruit in summer.

Another good plan is to run lines of black thread lengthwise and crosswise of the bushes, forming large, irregular meshes by winding the thread round the tips of the branches, this so annoying the birds as to ward off their attacks. This can be done with great celerity by the "Garden Webber" (Stott Company, Manchester). A better mode of scaring is to paint some small branches, such as peasticks or small Bamboo canes, with a sticky substance, such as a composition formed of a mixture of two parts resin and one part sweet oil, melted together by heat, and stirred until cold; or, better, equal parts of birdlime and linseed oil melted together by heat and stirred until cold. The sticks, or canes, well painted, should be placed obliquely and somewhat projecting in the bushes or trees.

A bullfinch or sparrow alighting on the smeared stick or cane is so scared in freeing itself that it will not come near the place again for a long time. Thus the buds are preserved, and the birds live on for good or evil. Better than all is placing freshly burned light lumps of lime in water, and forming a thin white-wash, straining and applying, freshly made, to the bushes by means of a syringe, coating them thoroughly. The dressing, made betimes, preserves the buds, and also frees them of lichen and moss, whilst the lime itself benefits the ground.

THE CHAFFINCH (*Fringilla cælebes*) is very fond of plucking up sprouting seed or seedlings of Radish, Turnip, and Brassicas generally, also Lettuce and other plants. This is the measure of its depredations. Its merits are destroying weed seeds, such as Groundsel, Chickweed, Plantain, &c., and feeding the young largely on small caterpillars and aphides. To keep the chaffinch and other birds from pulling up sprouting seeds and seedlings, the seed should be moistened with water and coated with red lead before sowing. This I have found an infallible preventive.—GEORGE ABBEY.

(To be continued.)

Progressive Business Houses.

An account of the clerical methods in vogue at a large seed emporium cannot but be interesting to readers, especially at this time of the year when everyone who has land or a garden to cultivate is busy sowing the seeds which are later on to produce grasses, vegetables, and flowers in abundance, and it is with more than ordinary confidence that I pen these remarks about Messrs. Sutton and Sons, of Reading, the largest firm of retail seed merchants in the world.

Their methods of invoicing, filing, and posting are all organised to ensure prompt dispatch and correctness, and the system works with remarkable smoothness. The entrance to the business house, although a fine structure, affords no indication of the work accomplished within. Still, there is a dignity about it which conveys the idea of something above the average, and the gold-laced porters who keep watch by the enormous case of medals, which speak of quality, are prompt in their attention to visitors. When one comes to think that the orders alone, apart from the correspondence of this great firm, attain a total of over 1,200 per day during a period of the busy season, and that many of the orders include more than 200 items, it seems that some subtle or magic power must be at work behind the scenes, in addition to the labours of the numerous invoice clerks, to accomplish so gigantic a task. It is true, they have a magic power. Each one works a light-running Yost type-writer, thoroughly up to date in every sense of the word. The machines are placed on a long bench extending from one end of an immense office to the other. No expense has been spared to make this bench and its appurtenances in every way conducive to comfort, health, and excellent work. Height of chairs, cupboards at the side for storage, and drawers for apparatus have all received their due share of attention, and electric light—with a lamp to each operator—leaves nothing to be desired. In the ledger office alone seats are provided for twenty-six operators, including correspondents, and when the full complement are pegging away at their work, each with a pile of orders to be invoiced, or letters to be typed, the sight invariably arrests the attention of Messrs. Suttons' numerous visitors.

The merry tap tap of the machines creates a subdued rhythmical sound, and the clerks who work at the contiguous desks say they have become so accustomed to it that absolute quiet would not be preferable. The written invoice, however neatly done, looks but a scrawl by the side of the one which is type-written, and the amount of work these little compact marvels get through in a day is simply astonishing. The writer a year or two ago worked a No. 4 on this very bench, and he can testify to the fact that during the months of January, February, and March, there is no business house in the South of England where machines are more continuously worked than in the ledger office of Messrs. Sutton and Sons, at Reading. With the exception of the lunch time, the tea hour, and a few minutes for casting the cash columns which the machine has so regularly and truly made down the page, the typewriters are in constant daily use from about January 5 until nearly the end of April. And even in the summer the tens of thousands of envelopes, circulars and labels which have to be addressed for sending the various catalogues to the customers, and which are produced with such exactness on the true platen, keep them going until the event of the bulb season in September, when they start again until December throbbing away on "Duc Van Thol" Tulips and other names which satisfy the botanist's sense of completion, especially in the Lily tribe, where *Lilium Thunbergianum aurantiacum multiflorum* rolls out fluently and not infrequently.—("Writing Machine News.")



ESCHSCHOLTZIA CALIFORNICA. (See page 270.)



Birds and Gooseberry Buds.

Last year one of your correspondents recommended the threading of Gooseberry bushes by means of Royle's threader, to keep birds from eating the buds, stating that it was an absolute preventive. Acting on his advice, I procured a threader and some cops of cotton, and threaded nearly an acre of bushes. With me the plan has proved a failure, and so it has in the gardens of two persons to whom I lent my threader. I wove the thread as thickly as seemed to me necessary, from close to the ground to over the top of each bush, but gales blew much of it off. So little did the birds care for the threads that they stripped off buds an inch or two under a strand of thread. Some bushes have had nearly all their shoots almost entirely stripped, so that they have to be cut out, quite spoiling the shape of many bushes. I did nothing to the bushes last season, and this year, in spite of the threading, they have been injured more than they were in 1902-3. They are less injured in the field than in the orchard, because, I believe, they got some of the caustic soda and potash spray when the Apple trees were sprayed. But that was not till the middle of February, by which time much of the mischief had been done.

In another field, containing eight acres of Cob-nuts and Gooseberries, both were sprayed in November with a wash containing quarter peck of freshly slaked lime, one pint of sulphur, and 1½ lb of softsoap to 3galls of water, as recommended in Wright's "Fruit Grower's Guide," vol. 1, page 191. A little of the lime in lumps should be placed in a pail, and sprinkled with enough hot water to slake it, a little sulphur being then dusted over it, and then more lime added, and so on. This dissolves the sulphur. The softsoap is dissolved separately, and added to the other ingredients. Then water to make 3galls of solution is added. Of course, for eight acres, I multiplied the quantities. If, as one of your correspondents stated, the caustic soda and potash wash is also effectual, it is much to be preferred, as lime is troublesome to spray, except through a very coarse nozzle.--W. E. B.

Potatoes and the Potato Boom.

Not being a very pugnacious individual, I am usually content to sit on the fence and listen to the sayings of others, but the article under this title in your Spring Number by "Horticultural Instructor," compels me to get into a fighting attitude!

"What does it all mean?" asks your correspondent, and he then endeavours to tell us. Hailing as he does from the Midlands, I should imagine that he has some affinity with the lecturer who urged cottagers to get a supply of Northern Star by combining their cash and getting a quantity. This same lecturer, by the way, has methods of his own, for I recently noted that he advised another class not to invest much money in the variety referred to. However, I will pass on to "Horticultural Instructor's" note, and try and discover what amount of instruction is therein. He says that if we grow in a wet season the varieties we have been accustomed to they succumb to disease, as if new varieties of Potatoes were few and far between. We are told that no manipulation of the markets will induce growers to pay fabulous sums, and this paragraph indicates how little "H. I." knows of the matter. Anyone may easily understand the cause of the rush, and it is £. s. d. A few wirepullers may easily start a boom, which, when started, arouses the interest of the lay Press. The man in the street then becomes interested, and noting this, the big grower scents profit, not by growing these wonderful Potatoes for ware nor for stock alone, but for sale as seed. The figure quoted for Eldorado has long since been surpassed, and the only guarantee of its merits are the words of three growers, so that, though successful on their ground, it may prove a failure on others, as witness the "Star" in the south. Yet, southern growers (I among them) paid the price, and reaped a yield varying in quantity, but general in quality. The Victoria x Don parentage has not resulted in a Potato equal to Up-to-Date, British Queen, Evergood, &c., despite the fact that these and many others are more closely related to the old pair. In my opinion, Northern Star, as far as appearances go, is a step towards the old Champion, and the quality is no advance.

Now "H. I." calmly informs us that a real disease resister is worth a high price, as the stock can soon be increased, but I unhesitatingly declare that there is no real disease-resisting Potato. I can point to more than one raiser whose seedlings were disease resisters, and whose latest novelties are equally so, but

they will not remain thus. "No one expects them to," remarks "H. I.," and from that I take it that, by the time a novelty has been grown in sufficient quantity to plant the whole country (about 50,000 tons) it will be done for, and must be replaced by something else! I should imagine that "H. I." is a replica of the great Cotton Sulley, with a desire to compel gardeners and others to be always paying high prices.

Several instances of phenomenal crops have come under "H. I.'s" notice, but he does not say whether they were grown artificially or naturally. All good Potatoes of the past have yielded very heavily in their early stages, under ordinary treatment, but because there was no boom no one thought to propagate from cuttings, and so get ten times the plants and crop. Yet, after all, what were the greatest yields of Northern Star under ordinary treatment in the field? Eighteen tons per acre is the heaviest I know of, and that can be said of Evergood and King Edward VII. In the garden trials, Northern Star did not outshine King Edward at 21 tons per acre, nor Duchess of Cornwall at 23 tons, nor Warrior at 25 tons; and how many of your readers have grown crops equal to these amounts from the old varieties when in their prime? More than one I venture! And when it comes to artificial propagation many of your old readers will recall the great crops a quarter of a century ago. I can find records of over half a ton from one pound of seed, but no such crop has been reported from Northern Star. Moreover, we do not want them, for the tubers in such yields are fit only for cattle, and resemble nothing but coarse mangolds: "busted" up with manure so that no man could relish the sight of them, let alone eating them.

Getting on to other varieties, "H. I." does not display much knowledge. He quotes Discovery as a kidney, whereas it is round, to pebble shaped. I wonder whether he knows what shape Sim Gray is, for I observe he quotes it as a lead off. Respecting this variety I should imagine he has been following the advertisements of its pushers. Nor does he apparently know that it has been out several years as Lynn Gray, and can be obtained at 12s. per cwt. Assuredly it has come to a fine pass when the bestowal of a R.H.S. certificate enables a farmer to claim he has the sole stock. "H. I." condescends to like King Edward VII. variety very much, but does not understand why it is frequently described as a round. I wonder whether he has King Edward VII. at all, for he makes no mention of its having pink flushes on some parts of its surface. As an instructor he displays some weakness in not knowing that his kidney King Edward VII. (if he has it at all) should never have been so named, because Mr. W. Kerr sent out a white round in 1902 under that title, while Butters came out in 1903. Then he gives Sir John Llewelyn as a second early, whereas it is a first early; and Factor, although sent out as a second early, has extended its season, and by my own and Dobbie and Co.'s showing, is a late variety. As to May Queen, it is a variety more suited for frame work, or Guernsey growers, for whom Sutton and Sons worked it up. As to its being the earliest is a debateable point. "H. I." gives Royal Kidney as not being a disease resister, but it only comes a point or two behind Evergood in that respect, whilst it is a good cooking variety.

It will be unwise, says "H. I.," to plant old sorts now that a disease-resisting strain has been struck; and, apparently, he imagines that there are only one or two raisers who aim at such, and for their benefit we should keep laying out exorbitant sums in purchasing their novelties, and, of course, as with Northern Star, which is now surpassed by Eldorado, the latter will in turn be beaten by another in a year or two, for already there are rumours of its superior from the same source. Until a smooth-leaved, smooth-stemmed variety is raised, there will be no immunity from disease, for the hairy nature of the foliage gives disease spores every opportunity, whilst the grooved stems, which are a provision by Nature to carry water down to the roots to enable the plants to live in their native habitat, also carry disease germs to the tubers, and as the Potato has now been in cultivation some 300 years, it appears that it is impossible to eliminate these characteristics (?).

Respecting the plan of pulling up the haulm when disease first appears, it tends to show still more how little "H. I." knows about Potatoes. It may be news to him to learn that over 100 years ago it was the custom of some farmers to feed their cattle on the fields, until they found that the yield of tubers was considerably lessened. Speaking of those days, what would some of our farmers say were they able to get varieties like the Ox Noble, Surinam, and Kentish Seedling, which yielded 28 to 47 tons per acre; Potatoes, by the way, which were only cattle food, although there was talk of an offer of £1,000 for a variety of good quality yielding not less than 30 tons per acre? "H. I." apparently is unaware that main crop varieties are more busily engaged in swelling their tubers when the disease comes (about July and August) than any other period, and the removal of the haulm, when in full vigour, can only end in a sudden check, more so than when disease runs its course.

Of course if seed Potatoes are the object the check does no harm; but certain it is that, while a bit of stem remains, the tubers continue to swell, and in practice I venture to say that quite as many Potatoes are liable to disease after the haulm is

removed as when allowed to remain. Disease does not attack Potatoes solely by the stem, but can penetrate the skin of the tuber from the exterior. Jensen, the Danish savant, declared that the mycelium is not carried down the stem, although others declare it impossible for the spore to live in the soil.—T. A. WESTON.

Notes on Apples.

Whether my concluding remarks, on page 237, are worthy of the attention paid them by "Provincial" on page 257 of the *Journal*, is a matter which I will leave to him to decide. He evidently considers them of great importance, as they appear to form the keynote of his reply. It may be a matter for regret that he has not been able to complete his projected series of notes on Apples through the interference of cruel time. Will "Provincial" please accept my sympathy for the heartless manner in which he has been treated by Time's ruthless hand? and in the future I hope Fate will deal kinder with him, so that the even tenor of his way may not be disturbed! I am glad to note that he places the varieties I mentioned on page 237 very high in his list of culinary Apples. This I consider is as it should be, yet surely it is not wisdom when commencing a series of notes on Apples to make the first, and apparently only, selection of second and third rate sorts, which those mentioned by "Provincial" evidently are. Such a method is misleading to those who are unacquainted with the better and more up-to-date varieties, yet this is exactly what your correspondent has done. Of course we are aware that it is not practicable in the limited space of the *Journal* to mention and describe all the widely-known and widely-grown Apples; but what are recommended should, if possible, be of the best, and many better varieties than those enumerated by "Provincial" could certainly be named.—S. P., Wilts.

The Varied Action of Tree (Vine) Roots.

This subject, so well discussed by "W. S.," on page 246, is one which has occupied a large share of my attention, and as I happen to be intimately acquainted with one of the persons who took part in the controversy in the *Journal* some years ago, and alluded to by your correspondent, I may be allowed to make a few further remarks on the matter. There is still a large amount of mystery connected with the subject, and no scientific experimentalist, so far as I know, has yet studied the peculiarities of the Vine in this respect. Neither am I aware that any writer before myself mentioned the fact that it is the habit of this plant, when in a healthy and vigorous condition, to form leaves before it commences to reproduce roots. When it was mentioned it was met by stout denials in influential quarters. Once I thought I had made a mistake, and that the habit could not be so general as I had stated it to be. This was in the year 1873, when our lamented friend, the late Dr. Hogg, honoured me with a visit at Longleat on his way to the Royal Horticultural Society's provincial show at Bath. As my permanent Vines had not then come into full bearing, some pot Vines were grown to assist the supply. These Vines were of one season's growth only; in fact, they were placed in the forcing house about nine or ten months after the eyes had been inserted. The leaves were then fairly ripened, but had not all fallen. The house was one of a number used for growing Melons and Cucumbers, and consequently had bottom heat pipes covered with rubble. The pots were plunged over these pipes in some natural-made leaf-mould, such as accumulated in low places in parts of the woods where there was little or no undergrowth.

Some time after the leaves had fallen from the Vines, the roots were examined and found to be active. This was a puzzler and threatened to upset all my previously formed ideas. But afterwards, when these Vines were coming into leaf, they were examined again, and there was not a white rootlet to be seen. Root hairs had all disappeared, and such as remained of the root fibrils had decreased in size, and had a loose covering of dead matter. Perhaps someone will suggest that I had killed the young roots by bad treatment. But that this was not the case was proved by the fact that each Vine ripened and perfectly coloured four bunches of Grapes, several of which weighed over three pounds each, and all of them were good. The quality of the fruit was attributed to the fact that the leaf-mould was afterwards found to be as full of roots as the soil round a healthy Box tree. Such leaf-mould cannot, I think, be made artificially, and is of immense value.

Well, then, the facts mentioned above tend to show that the roots of Vines are active after the leaves have fallen, and thus make up for their tardiness in starting. I cannot positively state that this is always the case, but I believe it is, and it should be a lesson for those cultivators who allow their borders to get rather dry while the fruit is hanging on the Vines late in the season. Here, then, is a question for the physiologist. What can the plants do in the way of feeding after the leaves have fallen? The root hairs mentioned are there for some purpose,

and it cannot be merely for absorbing water, because water is imbibed all through the winter, and in the case of the Vine in immense quantities in the spring before root extension commences. I have looked up the Dr.'s notes in the *Journal* of July 3, 1873, in the hope of finding mention made of the pot Vines, but although there is much that is flattering to myself, there is no attempt at any details, and the Vines in question are not alluded to. If my memory serves me right, no notes were taken excepting as to the measurement of houses.—WM. TAYLOR, Bath.

Gadding and Gathering.

Hardy Plants at Long Ditton.

Even thus early in the season there are many beautiful plants in flower at Messrs. Barr and Sons' nursery, Long Ditton, Surrey. A patch of *Arabis albida nana compacta grandiflora* is a gem upon the rockery, as it ought to be with such a descriptive name. The flowers are large, round, very white, and borne numerously in clusters. *Iris foetidissima variegata* furnishes a pretty-foliaged subject, while the white *Scilla sibirica*, and an albino form of *Chionodoxa Luculæ* are each exceedingly chaste. *Aubrietia Royal Purple* has spread over two or three square yards, and its large showy flowers are specially effective. This is quite distinct from *A. Hendersoni*, and seems to be richer. A passing reference must also be made to *Hedera Helix minima*, one of the dwarfest Ivies for use upon the rock garden. The stems grow erect, and bear straight rows of very small triangular leaves on opposite sides. *H. H. minima* and *H. H. conglomerata* are two suitable species for rockeries.

Some of the Primroses are very fine, as for example *Rosy Gem* (rosy-purple) and *Cecil Rhodes* (rosy-crimson), both singles. The smooth, fleshy-leaved *P. nivalis* with beautiful, pure white, sweet-scented flowers is in pots within frames; and the same applies to the dwarf *P. spectabilis*, with rosy-purple blossoms hardly raised above the close-set leaves. Along with these in neighbouring frames were quantities of mixed varieties of the Japanese Primrose—*Sieboldi*; the small pots being all plunged in ashes. Mr. William Barr has a number of variously coloured seedlings from *P. denticulata*, but none of them are good enough to keep; yet he intends to continue with this variety in the hope to "get fresh breaks."

A cultural point of some interest was noted in the treatment of the Alpine *Anriculas*, small plants of which are so very apt to damp-off when grown in pots and wintered in frames. By placing the pots on their sides in layers, each on the top of the other, to the height of 3ft or so, with the crowns facing out on both sides, the liability to dampness is quite overcome, and the plants remain tough and healthy. They even continue to grow though the soil in the pots seems dust dry.

One ought also to mention the pretty pink-flowered *Arabis anabrioides*, which grows compactly, and flowers very early. *Saxifraga Grisebachii*, also new, is one of the freest flowering members of the encrusted section, and throws up quite a long red spike with green-tipped bracts from each rosette of limy-flaked leaves. The dainty little flowers are nearly hidden by the pretty bracts. Since it was certificated this pretty species has spread about very considerably, and Messrs. Barr and Sons have a goodly stock of small plants. *S. Sancti* and *S. apiculata* as well as *S. Burseriana*, are, of course, well known.

Within the shelters made of laths or frames, or, in other cases, slender canes and reeds, many choice alpine plants that love shade and a damp bottom are grown. At this time of year there is little to note in actual flower. *Soldanella alpina*, however, manages to display its fringed lavender flowers, and the plants here are growing in leaf-mould mixed with the sandy loam, which they seem to enjoy. This plant, according to Mr. Barr, delights in a top-dressing of sand during the summer, and this applies particularly to gardens in the South. Hardy *Cyclamens* in small pots were also plunged in mould. Inquiring of my host whether these dainty little plants were much more in demand than they used to be, he was unable to say that there was a greater call for them. Many private gardeners hardly know them, and they seem to prefer to leave untouched plants which they have no acquaintance with. *Saxifraga oppositifolia* major furnishes a very satisfactory hardy plant for outdoor floral display at this season of the year.

And a passing word is deserved by *Erica carnea*, which ought really to be planted ten times more freely on banks or in beds, or as edgings to shrubberies; also to *Erica vulgaris argentea*, and *E. v. aurea*, the former with silvery growths, and the latter with intense brilliant crimson. Though named "aurea," the winter colour of the shoots and their shortened leaves is as I have described it—intense crimson, a colour almost or quite unique among dwarf shrubs. This rich colour only exists on the upper or exposed sides of the shoots, however; for the under surface remains green.—WANDERING WILLIE.

The King has consented to become a patron of the Royal Horticultural Society.



Apple, Golden Russet.

This excellent dessert Apple is curiously omitted from the "Fruit Garden," and many less meritorious kinds are described. The fruit is of medium size, 2½ in wide and 2½ in high, coloured dingy yellow russet, the skin being rough, thick, and scaly on the shaded side and round the base, and sometimes with a bright flame of varnished red on the side next the sun. The flesh is pale yellow, crisp, sugary, and aromatic, but not abounding in juice. Its season of use is from December to March. The tree is healthy, and an excellent bearer, but requires a warm situation to bring the fruit to perfection.

Earliest Fig Trees in Pots.

Early Violet and St. John's, though small, are excellent first early varieties, and now as they advance towards ripening must be kept drier. This applies both to the foliage and roots. Water, however, should be supplied to the roots so as to maintain the foliage in health. Trees of Brown Turkey swelling their fruits need full supplies of water and liquid manure until ripening commences, when a circulation of warm air will be necessary to secure well ripened, high quality fruit. The temperature should be maintained at 60deg to 65deg at night, 70deg to 75deg by day from fire heat, 80deg to 85deg or 90deg with sun, admitting air or increasing it from 75deg, closing the house early so as to advance 5deg to 10deg afterwards.

Planted-out Fig Trees.

These often grow too luxuriantly, and are frequently trained to walls at a considerable distance from the glass, so that they produce wood instead of fruit. This can be overcome by training the growths down the roof, securing to a trellis about a foot from the glass. Or the excessive luxuriance may be checked by lifting the trees, restricting the roots, and training the growths thinly. When the foliage has abundance of light, and the roots are plentiful in borders of limited area, the trees require liberal feeding. Fig trees with abundance of fibrous roots will take almost any amount of liquid manure without prejudice to the crop.—GROWER.

Strawberries in Pots.

The north-easterly winds have not been favourable to plants in flower, mildew flourishing, and sulphur is much less effective against it in winter than in summer. In dull weather it is well to shake the flowers occasionally when the pollen is ripe, and to remove the smallest and least desirable, leaving the boldest, which are usually the first to expand, and they generally afford the largest fruit. Thin the fruits after they are set, leaving the number on each plant it is calculated to mature well. Colour and size are the chief points in a forced Strawberry, and a relatively few good fruits are better than many indifferent. The plants should be examined twice a day for water, supplying it when needed liberally, affording liquid manure two or three times a week when the fruit is swelling. Steady progressive growth is most favourable for Strawberries until after flowering, then they swell better in a high temperature, and moist but not very close atmosphere.—G. A.

Fruit Growing in Nova Scotia: Model Orchards.

Fruit growing in this favoured province of the Dominion is an industry of the first importance. The Nova Scotia Government by the establishment of twenty-five model orchards—in every county of the province—is wisely influencing the range of profitable fruit cultivation. The possibility of growing Peaches on a commercial basis in Nova Scotia has always been a very debatable subject, but the results now obtained on systematic lines go far to prove Peaches can be made an important asset in the fruit-growing industry. The most successful varieties are the Elriv and the Elrose, and crosses of the Elberta and Early Rivers, and Elberta and Mountain Rose respectively. In late Plums, Cox's Emperor and the Late Orange, imported originally from England, have now been demonstrated to be valuable market sorts for Nova Scotia; the former ripened by October 1, while the Late Orange was not ripe until October 10, and was still in good condition by December 1. The latter variety should prove valuable for canning purposes, as it comes late in the season when most of the other kinds are gone.

At these model orchards much valuable information is being

accumulated and distributed on such matter as spraying with different insecticide solutions; the seeding down orchards with cover-crops of nitrogenous and non-nitrogenous plants, such as Clovers, Vetches, Alfalfa, Buckwheat. The prevention of winter killing of trees, which is mainly confined to the Peach and Apricots, is being successfully overcome by getting trees into a dormant state early in the autumn, by stopping cultivation late in June, and sowing a cover-crop. There is also the Government School of Horticulture at Wolfville where the tuition is free.

Societies.

R.H.S. Scientific Committee, March 22nd.

Present: Dr. M. T. Masters, F.R.S. (in the chair); Messrs. Shea, Holmes, Gordon, Bowles, Massee, Worsley, and Michael; Professor Boulger; Revs. W. Wilks and G. Henslow, hon. sec.

SPRINGTAILS.—Mr. Allan, Ashurst Park, Tunbridge Wells, sent specimens, observing that he always found them on the ground round about the glass houses in spring and summer during showery weather. Mr. Saunders reports as follows:—"In reply to the letter from 'J. R. Allan,' the little insects are specimens of one of the 'springtails' or Poduridæ, and belong to the genus Podura. These little creatures may often be found in very large numbers together. Out of doors they are not, as a rule, the cause of much mischief to plants. They sometimes, however, injure the roots of Potatoes, Carrots, Cabbages, &c. In Mushroom beds they are often the cause of much injury to the Mushrooms when they are quite young; in Cucumber frames they attack the young Cucumbers, gnawing off the outer skin, and causing the fruit to shrivel. They are difficult to destroy, as it is in many cases impossible to apply an insecticide without injuring the plant on which they are found. Where it is possible to use such a remedy, the simplest way of destroying them would be to pour very hot water over them. A strong solution of salt or nitrate of soda would probably be just as efficacious. The springtails are very intolerant of drought, and are generally only found in damp situations."

ACARI IN BARK.—Mr. Barclay, of Stevenage, sent specimens, describing them as being "under every bit of loose bark and in all crevices of the fruit trees." Mr. Michael observes: "They belong to the genus Oribata, possibly *O. orbicularis* or *O. lapidaria*. From a gardener's point of view they are practically harmless and may be disregarded."

Ipswich—Bacteria of the Soil.

The winter session of the Ipswich Mutual Improvement Society was brought to a successful conclusion on March 17, when Mr. H. de Beer, a member of the Ipswich Scientific Society, gave a lecture illustrated with lantern slides on "The Bacteria of the Soil." Mr. C. H. Snipston, vice-president, occupied the chair, and in introducing the lecturer, commented upon the interest now excited in the subject among all up-to-date cultivators of the soil. Mr. H. de Beer, in commencing his lecture, said he could lay claim to no great knowledge of gardening, but still he might be able to say something of interest concerning those minute members of the vegetable world which the development of the microscope had revealed to us. He then proceeded to explain at considerable length how the higher plants obtained their food and built up their substance, from the organic and inorganic elements and compounds in the soil and air, pointing out in this connection the work of the bacteria in converting ammonia into nitrates. The presence of oxygen was noted as important for the life of the bacteria in soil, showing the value of thorough tillage. The power possessed by the bacteria occurring in the root nodules of Leguminous plants to absorb free nitrogen from the atmosphere was mentioned, and the value of this circumstance pointed out. The lecturer concluded by referring to the treatment of sewage by bacteria, showing several photographs of the systems of beds and tanks in use at Manchester and other places. A hearty vote of thanks was accorded Mr. de Beer for his lecture, which was much appreciated.—E. C.

Hull and District: Cactaceous Plants.

At a meeting of the Hull and District Horticultural Association held on March 22, Mr. J. P. Leadbetter in the chair, an essay was read by Dr. Wilson, M.A., of South Cave on "Cactaceous plants and their Culture." Cacti, said Dr. Wilson, were a remarkable instance of the way plants are adapted for the climate in which they are found, and it becomes the cultivator to as far as possible imitate those conditions. Cacti are mostly tropical, and are found in dry districts. The growth is made during the rainy period, and moisture conserved by the plant to withstand the drought. Cactaceous plants, as a rule, are put in some odd corner out of the way, and scarcely any attention afforded them.

Propagation could be effected by seeds, cuttings or grafting.

Plants from seed were freer in growth, but it required longer to form a good plant. Sowing may take place in spring. Caeti could be grown by amateurs in their greenhouse of miscellaneous plants, and would afford as much interest to the grower as the collection in a botanic garden. A hearty vote of thanks was accorded Dr. Wilson for his interesting paper.—W. R.

Devon and Exeter—Gardeners and Their Duties.

Mr. Slade, of the Poltimore Gardens, read an interesting paper to the members of the Devon and Exeter Gardeners' Association at the Guildhall, Exeter, at their latest meeting. It dealt with "Gardeners and Their Duties." Mr. Wallace Mackey, of the Royal Nurseries, presided. Mr. Slade referred to the National Gardeners' Association. If such be definitely formed, it should not, he said, be confined to head gardeners, but be open to young members of the craft who aspired to higher positions. Of course, the lady gardener would press her claim to be admitted as a member of such an association. There was a great difference between the man who walked about a garden with a spade on his shoulder and one who had charge of a number of men and the responsibilities of an extensive garden. The latter needed a knowledge of botany, chemistry of the soil, landscape work, arboriculture, and the management of men. As to a gardener's duties they, of course, depended to some extent on the position held. One of the chief duties of the head gardener was to find out his employer's wants, wishes, and tastes, and then satisfy them to the best of his ability. The tastes and wishes of an employer should be anticipated. The gardener should, therefore, have a certain amount of discretionary power. Another duty of the gardener was to keep himself thoroughly up-to-date, and become acquainted with the best varieties and methods of production. He should endeavour now and again to grow something that would come as a pleasurable surprise to his employer. This would, of course, give extra work, but that ought to be readily undertaken. Another duty was to carefully plan and arrange work fully twelve months in advance. This needed forethought. He warned young gardeners that the survival of the fittest would apply, possibly, more in the future than in the past. Therefore every junior should strive to make himself efficient and always endeavour to learn something more. At the close a hearty vote of thanks was accorded Mr. Slade for his useful paper.

In the competition for the best head of Broccoli the first prize was awarded to Mr. Charley, of the Wonford House Gardens; Mr. Rogers, of Barley House, and Mr. Ford, of Fair Park, being placed equal seconds.

Cardiff Gardeners—Annual Meeting.

The annual general meeting of the Cardiff Gardeners' Association took place at the Grand Hotel on Tuesday, March 22, Mr. H. R. Farmer presiding over a large attendance. Mr. Malpass, hon. treasurer, produced the balance-sheet, and stated that the funds were better at the present time than they had been in previous years, and a good balance stood to the credit of the association. The same was unanimously adopted. The hon. secretary gave his report upon the work of the past year. In doing so, he said that the average attendance per meeting had been the highest on record. The series of lectures had been the very best to date. The chairman also made a brief speech, referring to the hearty co-operation of the committee and members, and thanked them cordially for assisting him in carrying out a record year's work. The following officers were afterwards re-elected for the ensuing year:—President, J. Lynn Thomas, Esq., C.B., F.R.C.S., J.P.; vice-presidents, the whole list; hon. treasurer, Mr. Thomas Malpass; hon. secretary, John Julian; Mr. Tom Clarke was elected chairman, and Mr. F. Waller vice-chairman, and eight influential gentlemen to serve on committee. Votes of thanks were accorded the retiring officers and Press for their services during the past season. It was also passed to have the annual outing in the beginning of August next.—J. J.

Birmingham—Parasitic Plants.

In his recent address before the Birmingham Gardeners' Association, Dr. A. H. Reginald Buller gave, amongst his illustrations of flowering parasites, one of *Rafflesia Arnoldi*, whose flowers measure fully 3ft in diameter, are capable of containing about 2galls of fluid, sometimes weigh 10lb, and are the largest of all known blossoms. It was discovered in 1818 by Dr. Arnold. Sir Stamford Raffles, at that time Governor of Bencoolen, was on a tour in the interior of Sumatra, accompanied by Lady Raffles, Dr. Arnold, and others, when the party alighted upon a flower of enormous size, more than a yard across. Descriptions and drawings of this vegetable prodigy were sent to this country, and the plant was named by the celebrated Robert Brown in honour of its discoverers. Since then several other species have been discovered, but none of equal size with that just mentioned.



Apple, Golden Russet.

The true *Rafflesias* have no proper stems or leaves, but consist solely of flowers, varying in diameter from 2in or 3in to as many feet, enveloped at the base by a few bluish or brownish scales, and emerging from the roots and trunks of various species of *Cissus*. The unexpanded flower buds in *R. Arnoldi* are roundish, and resemble a close Cabbage in shape. The perianth is flesh-coloured and mottled, and has a scent of tainted meat, by which insects are attracted, hence serving the purposes of pollination. This is probable, as the stamens and pistils are in different flowers, contained in the deep, cup-shaped perianth. It is said that this parasite develops its flowers at a season when the leaves and flowers of its host (the *Cissus*) have withered. Astringent and styptic properties have been assigned by the Javanese to these singular plants, and a smaller species, *R. Patma*, whose flowers are 16in to 2ft in diameter, is highly prized as a medicine and for its strong styptic powers. *R. Horsfieldi*, another Javanese species, is still smaller, its flowers being only 3in broad. Dr. Buller exhibited a photographic slide, also sections of one of the hosts of the Mistletoe, showing the cellular systems of the two plants thus come into contact, though no direct communication takes place between their vessels.

The demonstrations thus presented by the lecturer of the mystic and ever-interesting parasitic shrub, of Yule-tide fame, evoked the enthusiasm of the audience. Apropos of the variety of trees laid under contribution by the Mistletoe for its propagation, it is stated that it has been rarely found upon the Oak (hence the veneration accorded by the Druids when so found, and the ceremonious and solemn rite of cutting it off the host with a golden sickle or knife). It is recorded that Mr. Ingram, the first royal head gardener at Frogmore, Windsor, attempted to propagate the Mistletoe upon a large variety of trees in Windsor Park, and with some considerable success, on the Oak, specimens of which are still existing.

A peculiarity regarding the fruiting of the Mistletoe is the absence of berries, so frequently to be observed in large bunches

of the plant. Whether this peculiarity is persistent or not from the initial growth of such branches, the writer is not cognisant, neither has ever noticed rudimentary or embryonic flowers or fruit upon the same. It is a problem worthy of investigation. A hearty vote of thanks was accorded to Dr. Buller for his highly entertaining and instructive essay.

There was a more than ordinary attendance of members at the latest fortnightly meeting to hear Mr. R. Hooper Pearson (of the "Gardeners' Chronicle") discourse on an interesting matter, entitled "Some Thoughts upon Horticulture and Horticultural Societies." Mr. Pearson necessarily briefly reviewed the progress of horticulture during the last century, and the names of a few of the great pioneers of botany and horticulture generally. The beneficent attributes of horticultural associations and exhibitions were cogently brought under review, and the essayist urged that there should be a greater affinity between horticultural societies, and more especially an affiliation with the Royal Horticultural Society, but, at the same time, each provincial society to retain its own management. The lecturer's suggestions met with more or less approbation.

Bristol:—Ancient and Modern Gardeners.

This was the subject of a most interesting lecture delivered before the Bristol and District Gardeners' Mutual Improvement Association on Thursday evening last, by Mr. Meyers, of Exeter. Mr. W. E. Budgett occupied the chair, and there was a good attendance. With the aid of about 80 lantern slides the lecturer was enabled to explain the difference between old-time gardening and that of the present. Among the many slides shown were views from the Hanging Gardens of Babylon, the old-style Roman gardens, those of Jamaica, Japan, France, and many others. Beautiful views of some of our English parks and gardens were very pleasing, notably Sefton Park at Liverpool, Battersea, Chatsworth, and others. Probably the most interesting were those of rock-gardens, which Mr. Meyers had personally superintended the building of, in many instances hundreds of tons of stone being used in their formation. Great skill was required, and it was quite evident that Mr. Meyers had mastered this part of his profession, in which he stands second to none. His lecture was thoroughly enjoyed and appreciated by his most attentive audience, and on the motion of Mr. Budgett he was cordially thanked for one of the most enjoyable evenings the society has had. A hearty vote of thanks to the chairman concluded the meeting. Prizes for two Cinerarias (kindly given by Messrs. Garaway and Co.) were awarded to:—1st, Mr. F. C. J. Fisher (gardener, Mr. Shelton); 2nd, to Mr. A. Coles (gardener, Mr. Bird). Certificates of merit went to Lady Cave (gardener, Mr. Poole, F.R.H.S.) for a collection of fruit and vegetables, including Pineapple and Strawberries; Mr. T. F. C. May (gardener, Mr. Jennings), for *Cypripedium villosum*; Mrs. A. Hall (gardener, Mr. Ware), for *Dendrobium Wardianum*; and Mrs. Henry Derham (gardener, Mr. Skase), for *Cypripedium Rothschildianum*. The society's special certificate was recommended to Mr. W. Howell Davis (gardener, Mr. Curtis) for a beautiful *Dendrobium nobile*.—H. K.

Royal Meteorological:—Water Vapour.

The monthly meeting of this society was held on Wednesday evening, the 16th inst., at the Institution of Civil Engineers, Great George Street, Westminster, Capt. D. Wilson-Barker, president, in the chair.

Mr. Richard H. Curtis delivered a lecture on "Water Vapour," which he illustrated by experiments and lantern slides. After explaining that water vapour is water in the state of a gas, he proceeded to speak of the processes of evaporation and condensation, and showed that the capacity of the air for moisture varies according to the temperature. The amount of vapour in the air has a great deal to do with our personal comfort. A dry, cold air is not so unpleasant, and does not feel so cold as a damp air, although the temperature of the damp air, as shown by the thermometer, may be higher than that of the drier one. But our sensations are often at variance with the thermometer, and this generally so because of the way in which they are affected by the vapour of the air. If the air be dry a degree of heat can be enjoyed which would be simply unendurable if it occurred with a humid atmosphere. The amount of vapour in the air is ascertained by means of an instrument known as a hygrometer, various patterns of which were shown by the lecturer. He then referred to some phenomena of the atmosphere in which water vapour plays a leading part, and described the formation of dew, hoar frost, fog, cloud, halos, rain, snow, and hail. The lecturer concluded by saying that he had tried to show how a particle of water may be taken from the ocean and stored away invisible in the atmosphere above it; how that particle may travel for many miles to distant parts of the globe, and then by the action of another of Nature's processes be changed back again into water, and fall once more upon the ground beneath. There it may unite itself to other similar drops, and together form a tiny

stream, which may gradually grow to the dimensions of a river, and once again our drop of water may find itself a constituent part of the ocean to repeat its pilgrimage, and carry on the part it is destined to play in the economy of Nature.

Newport (Mon.):—Salads.

The usual meeting of the Newport (Mon.) Gardeners' Mutual Improvement Association was held on Wednesday, the 23rd ult., when Mr. F. S. Daniels read an instructive paper on "Salad Plants, and How to Grow Them." The lecturer commenced by stating that salad meant a food of raw herbs, and that a gardener was expected to provide a salad from January 1 to December, this often taxing a gardener's skill and resource to the utmost, especially when without proper convenience. Mr. Daniels then gave the following list of plants as being used in providing material for salad, viz., Cucumber, Tomato, Lettuce, Radish, Endive, Mustard and Cress, Watercress, Celery, Chervil, Borage, Sorrel, Coriander, Burnet, Purslane, Rampion, Chicory or Whitloof, Dandelion, Corn-salad, *Stachys tuberosa*, and Beetroot. He then proceeded to give directions for growing most of these plants. A very good discussion followed, in which Messrs. Harris, J. Basham, Woodward, C. Basham, Preece, and others took part. Mr. Preece proposed a very hearty vote of thanks to Mr. Daniels for his able paper, seconded by Mr. Taylor, supported by Messrs. J. Basham and Harris, and carried unanimously. A vote of thanks was also accorded to Mr. Woodward for a very nice basket of salad. Mr. J. Duff presided over a good attendance.—J. P.

Obituary.

Mr. Hermann Herbst, V.M.H.

It is with extreme regret that we have to chronicle the decease of Hermann Herbst, V.M.H., at his residence at Stanmore, Richmond, on Friday, 18th inst., at the age of seventy-four, after a brief attack of pneumonia supervening upon influenza. Although for a number of years Mr. Herbst had been debarred from attending the meetings of the Royal Horticultural Society, owing to two paralytic strokes, the last of which entirely disabled him, his memory will be long cherished by all who knew him personally, both on account of his amiable, cultured, kindly, and hospitable disposition, and of the recollection that in some of the chief developments of market horticulture he was the absolute pioneer, especially in the direction of forced Lily of the Valley culture, and the introduction of Palms, Adiantums, and similar exotics on a wide commercial scale. *Cocos Weddelliana*, *Iresine Herbstii*, *Dipteracanthus Herbstii*, and many other high class plants were introduced by him, either to this country or to the public, and the popularity of *Epiphyllum truncatum* was first induced by his recognition of its peculiar decorative value.

During his long career he travelled much, spending many years in Brazil, where he was director of the Botanic Gardens in Rio de Janeiro, and going thence to the Mauritius and the Cape by command of the Emperor of Brazil to collect the best varieties of coffee and sugar cane, prior to settling in this country upon the very ground where he died, after a well-earned and comfortable retirement. From the mass of certificates of character placed at the disposal of the writer it is abundantly evident that his career from beginning to end was an exemplary one for the young and ambitious gardener to follow. Thoroughness in both study and labour, coupled with intelligent appreciation, not merely of the plants themselves, but of their adaptability to the public taste characterised it throughout, conjoined with a keen business instinct which one fact alone brings to light most prominently.

On reaching England from Brazil, he looked about for an eligible nursery site, and having fixed upon the selected one at Richmond, he visited Covent Garden to see, not what was already in vogue, but "what they had not got," and, as a result, commenced to remedy the shortcomings noted by the cultivation on a large scale of the several classes of plants above cited, which, well grown, and well exhibited, at once created a demand and, to judge by a marked catalogue of an auction sale by Messrs. Protheroe and Morris in 1877 of some 25,000 rare and new Palms, &c., must have well repaid him for his acumen and outlay. It was in recognition of these tangible public services, and the high horticultural genius which underlay them that the Royal Horticultural Society selected Mr. Herbst as one of the first recipients of their Victoria Medal of Honour, and he was undoubtedly one of the most worthy of that distinction.

Prior to his disablement by paralysis he constantly attended the Floral Committee, where, on account of his long and extensive knowledge, he was recognised as one of the highest authorities in his particular line. His death will be mourned by a large circle of appreciative friends. By his own desire his body was cremated at Woking Cemetery, where on Tuesday, the 22nd inst., this function was well attended by many of those who knew him.—C. T. D.

Desfontainia spinosa.

This distinct and beautiful shrub was introduced a good many years ago by Messrs. Veitch, and the attention it has excited during recent years has led to its culture out of doors in all of the favoured counties, with the result that its hardiness has been proved in many districts. It is extensively planted in sheltered nooks and well-selected and prepared positions in shrubbery borders. *Desfontainia spinosa* is a valuable ever-green; the dark green foliage, which bears a close resemblance to that of the common Holly, is thickly set upon a rigid, erect, bushy growth. The flowers come early in August and continue in full beauty for upwards of a month, in clusters of long pendant tubes upon the ends of the branches. It answers well in ordinary garden soil, but should have an elevated, well-drained position, sheltered yet open, and is quite worthy of a special station of good soil.

It is common in the gardens of Cornwall and Devonshire, and Ayrshire to our knowledge, where it attains a height of from five to six feet; which would seem to be its maximum in this country, several of the largest specimens showing traces of incipient decay.

The annexed engraving well portrays the appearance of the shrub, and its full beauty will be appreciated when it is remembered that the flowers are rich scarlet in colour, tipped with yellow, and the foliage dark, glossy green. It would be interesting to learn how far northward this shrub can be considered hardy. Frequently it is grown in pots for the green-

Temperate Ferns.

Pellaea cordata flexuosa.

A graceful temperate-house fern with long, slender fronds, whose stems or rachis are of wiry texture and coloured light brown. The fronds are bi-pinnate, loose and graceful. The pinnae or leaflets are either round, oval, or heart-shaped, and $\frac{1}{4}$ -inch in breadth.

Adiantum reniforme.

This very distinct species of the Maidenhair genus of ferns appears to be seldom grown in private gardens, yet it furnishes an interesting subject. The young leaves are very pale green, and contrast with the dark colour of the older ones. Each leaf is reniform (kidney-shaped), and when fully developed measures over one inch either way. The edges are slightly wavy; the texture is leathery, and the surface smooth and glossy. Each leaf is borne by a separate slender stalk, about 3 ins. long, so that a pan filled with this fern has a very similar effect to a pan containing say *Shortia galacifolia*, excepting the colour.

Davallia stenocarpa.

At first appearance this beautiful addition to the fernery reminds one immediately of *D. hirta cristata*, and has also a strong resemblance to the tropical species named *D. spelunceae*. From a young plant at Kew, seemingly received from Paris last year, the light green fronds are seen to be $1\frac{1}{2}$ to 2 ft. long, growing up obliquely and bending over at the tips. Further, the divisions of the fronds also curve



Desfontainia spinosa.

away on either side from the main axis, and this recurring habit adds greatly to the grace of the plant. The fronds are bi-pinnate, the larger pinnae of the lower segments being in turn crenately lobed. *D. platyphylla* is another handsome subject.

Marsilea and Other "Water-Ferns."

The Marsileaceae and Salviniaceae comprise four genera of "Water Ferns," namely, *Marsilea*, *Pilularia*, *Azolla*, and *Sal-*

£5,000 FOR ERADICATING OPUNTIAS.—A reward of £5,000 is offered by the Queensland Government to the inventor who can devise a sure means of completely eradicating the vigorous weed known as Prickly Pear (*Opuntia vulgaris*).

vinia, and from a botanical point of view they are extremely interesting. *Pilularia globulifera* occurs on the edges of marshes in Great Britain, and has long grass-like leaves; *Azolla foliolaris* spreads rapidly in open-air water tanks, and from two or three plants (they are about the size of a threepenny-piece and float on the water) tossed into a tank at Barr's Long Ditton nurseries, thousands of plants have multiplied until now the water can scarcely be seen. They are thus as bad as the ill-favoured little Duckweed. *Salvinia natans* (which grows without roots) is to be found throughout the South of Europe in pools, and is cultivated in the Lily-house at Kew, and in many other gardens and nurseries. Lastly, the species of *Marsilea* are very widely spread in temperate and hot climates, and are sub-aquatic. In the temperate fern-house at Kew there are plants on one of the stages, of the species *M. macra*. These are growing in an ordinary loam compost, and succeed admirably. Their appearance is very much like that of a large *Trifolium*, only that the two pairs of leaflets (arranged in a cross) are felted with silvery hairs. Each pair of leaflets is borne on a stalk 6 in to 9 in long.

These water-ferns are always included with plants spoken of as "fern allies," along with the *Equisetums*, *Selaginellas* and *Lycopodiums*, and they have been the subject of considerable discussion from time to time. For small aquaria or for greenhouse tanks they are interesting plants, but the gardener without some knowledge of botany would doubtless see nothing either of beauty or interest in them.

Pteris semipinnata.

The name is an index to the character of the fronds of this species, but a true idea of the anomalous growth can hardly be portrayed in words. The fronds are 1½ ft to 2 ft high, slender, with black rachis, and dark green pinnules. But these pinnules or leaflets are only borne on one side of the stalk: the fronds are literally one-sided, as the name implies. The top three or four inches of each frond is pinnate on *both* sides, and closely resembles the fronds of *Blechnum occidentale*; but lower than these few inches they become one-sidedly pinnate. It is a very graceful fern, and deserves special notice.

Cheilanthes myriophylla elegans.

Cheilanthes represents a genus of very elegant ferns, of which some sixty species are now known. They vary considerably, and members from what were lately described as distinct genera, have been placed under *Cheilanthes*. Most of the species and varieties are either woolly or covered by a fine powder, and they do not thrive when their fronds are sprinkled with water. Watering must at all times be carefully attended to, for if the plants are allowed to become dry the fronds curl up and die. The divisions of the pinnules in the species named above are very minute, and the frond has a delicately light appearance that surpasses even the finest *Gymnogrammas*. The *Cheilanthes* are not always easy to cultivate.—J. H. D.

The Cultivation of Vegetables.

The following paper was read before the Woking (Surrey) Horticultural Society by Mr. G. Carpenter, The Gardens, West Hall, Byfleet:—All of us are aware of the importance of growing good vegetables, not especially for exhibition, but for general use. It is of the greatest importance to every gardener that he should keep up a continuous supply of good vegetables for his employer's table. No matter the size of the establishment, vegetables must be had; and in nearly all cases it falls to the lot of the gardener to provide them. Everyone with experience will know how difficult it is at times to keep up the supply. This is especially the case with some gardeners when they are cramped for room or when their gardens are undermanned.

One of the greatest mistakes made when planning out a kitchen garden is to plant standard fruit trees here and there on the vegetable ground. This may be all right for the first year or two, but afterwards the trees overshadow the ground, and make it impossible to grow good vegetables. The ground cannot be too open and free from shade, although any shelter from north and east would be very beneficial. Many gardens have come under my notice in which the growing of vegetables to perfection has been rendered impossible owing to the ground being smothered with Apple, Pear, and Plum trees. The gardener, however, has been expected to send in a regular supply of good vegetables in their seasons.

It is not always an easy thing to supply an establishment with vegetables all the year round without a break, even if one has every convenience and plenty of open space. Scores of things may happen to damage or ruin the particular crop. The gardener's troubles do not always end after a crop has been grown, for he has nothing to do with the cooking of them. All of us know how important it is that vegetables should be properly cooked. Are they always cooked as they should be? I am afraid not. If they were, I am sure so many complaints would not reach the gardener about his vegetables. To take a few

examples that have come to my notice. Potatoes for cooking at night have been prepared in the morning, and left in water all day. Could anyone expect a good Potato after that? The gardener would be informed that the Potatoes were not good. Peas also were treated in the same way—shelled in the morning, and left all day to get dry. Little wonder, when cooked at night, that they were not satisfactory. Again, the gardener would be informed that his Peas were too old. Celery is another vegetable that is badly treated. If prepared as soon as taken in in the morning and placed in pure water until wanted it will be crisp and delicious; but what a difference if, as is frequently the case, it is left out of water until just before it is wanted for the table; it is then tough and hard, and not like the same vegetable. The poor gardener again is blamed. I might give more examples, but these are sufficient to show what I mean.

Do not think, however, that the cook is always to blame. By no means. The gardener often has his faults, but I do think that some of the mistakes made in the kitchen do not rest on the right shoulders. My experience in this matter teaches me that the last person to be unfriendly with is the cook. Take my advice, and always be good friends with her; her friendship is worth looking after, although so hard to obtain.

As an ideal site for a kitchen garden, I should prefer a piece of ground sloping gently to the south, with some kind of protection on the north and east. All bush fruits, as Currants, Gooseberries, &c., should have a place to themselves, and not be dotted about here and there all over the ground. When all together, they are more easily netted over when in fruit, and in the winter it is much easier to keep the birds from the buds, &c.

The soil, for preference, should be a rich sandy loam, but of course we have to put up with what we can get. If the soil is not to our liking, we must do our best to improve it. A stiff and heavy clay is about the worst to deal with, but even that can be made to grow some of the best vegetables if sufficient labour is expended on it to bring it into good working order. I have not the time, even if I wished, to deal with each separate vegetable singly. I propose to deal with them in a more general way, which I think will be more useful, my motto being: "Good vegetables, and plenty of them."

I believe that good vegetables, fit even for exhibition, can be grown without going to such lengths as are recommended by some of our experts. Not one gardener in ten could follow their instructions without neglecting something else, and this has been the downfall of many exhibitors. Scarlet Runners, they say, should have a trench two feet deep and the same wide dug out for them. This should be filled with good well-decayed manure, some of the soil replaced, and the plants, previously grown in pots, should be planted in this prepared bed of manure, for we can call it nothing else. Leeks and Onions are other expensive vegetables to grow for show. The labour spent on them is enormous. I do not think I should be far wrong in estimating the cost of each Onion or Leek, reckoning from the time the seed is sown to the time they are placed on the exhibition table, to be 5s. It does not seem to me to be the right thing to recommend such costly cultivation. It is all very well from an exhibitor's point of view, but only a very few of the large army of vegetable growers really go in for exhibiting. I think the aim of such societies as this should be the advancement of horticulture, and I cannot think that the practice of some of our experts tends in that direction. I am positive that thoroughly good vegetables, fit for exhibiting, can be grown without all this extra special trouble.

Is it not a mistake to endeavour to grow such large vegetables? Quality is often passed over for size by some of our best-known judges. This, I say, is not as it should be. Moderately-sized, well-grown vegetables are much preferable to large, overgrown stuff, fit only to look at. Some vegetables, of course, are not spoiled by their size. I am pleased to see that some people are beginning to take up this subject of "size versus quality." If they can be combined, then I have nothing to say against it, but how seldom one sees them together.

I once knew an exhibitor of vegetables, who always said good vegetables would realise good prices in the market, and that when he retired from service he intended still to grow vegetables in the same manner as he did for show. The opportunity came for him, and he started to grow for market. He soon found out, however, that all special extras must be left out, and that he must go in for a more general way of growing, getting quality and quantity combined as far as practicable, with quick crops, never allowing the ground to be idle. It seems to me to be useless to try and teach people to grow vegetables in a certain way if it cannot be done in practice and be made to pay. The same applies to private gardens; good vegetables and plenty of them are what is wanted.

(To be continued.)

OUR SPRING NUMBER.—Mr. Geo. Abbey writing on March 16, says:—"May I compliment you on your Spring Number? It is one of the best I have seen." * * Another correspondent writes:—"Many will echo the sentiments of 'K.' regarding the Spring Number of the *Journal*, and none more heartily than—S., from Scotland."



Fruit Forcing.

CUCUMBERS.—The bright sun has caused plants kept close during the cold and prolonged dull wet weather to flag, and therefore light shading is desirable for a couple of hours at midday, when the sun is powerful. Plants in bearing will need water with a little nourishing food in it once or twice a week, and the roots must be earthed occasionally. Old plants that have been in bearing some time should have the exhausted soil removed without injuring the roots. Add a little rich, lumpy compost, previously warmed. Exhausted growths should be cut out, and young bearing shoots encouraged. Damp the floors and other surfaces in the morning and evening, and syringe the plants lightly on fine afternoons. A temperature of 65deg to 70deg at night, 70deg to 75deg by day artificially, 80deg to 85deg with sun, closing sufficiently early to run up to 90deg or 100deg, with abundance of atmospheric moisture, will be suitable. Ventilate early, but moderately, avoiding sudden changes of temperature, for pernicious cutting winds and currents of cold air cripple the foliage and deform the fruit.

IN PITS AND FRAMES the necessary heat should be maintained by renewing the linings, taking care to keep rank heat out of the frames. Train the growths rather thinly, and stop them one or two joints beyond the show for fruit. Follow directions given for plants in houses.

MELONS.—When the earliest plants are in flower, and during the setting period, water should only be given to prevent flagging, and the atmosphere must be kept drier, with an increase of temperature of about 5deg. Fertilise the blossoms every day, pinching each growth at the same time at one joint beyond the fruit. When the fruits are set and about the size of a bantam's egg, give a thorough watering with tepid liquid manure or water, having the soil for earthing the roots warmed. Stop the subsequent growths to one or two leaves, and avoid overcrowding by removing superfluous growths. Maintain the bottom heat between 80deg and 85deg. Syringe moderately about 3 p.m. on bright and warm afternoons, or soon after midday when the air is sharp. Damp the floor in the morning, and keep the evaporation troughs charged with liquid manure. Liquid manure will be needed by plants in restricted borders, and a mulching of rather lumpy manure encourages roots and affords support.

PEACHES AND NECTARINES: EARLIEST FORCED TREES.—The trees must not be hurried during the stoning process, but continue the temperature at 70deg to 75deg by day with sun heat, and about 65deg in dull weather. Tie the shoots to the trellis as they advance, and regulate the growths for future bearing, so as not to have them too crowded. Shoots more than 14in in length that are not required for extensions may have the points pinched out and laterals should be stopped at the first leaf. When the stoning process is over, the fruits will require regulating for the swelling period. Supply weakly trees with liquid manure, and inside borders must be kept properly watered, mulching the surface with partially decayed manure. The temperature may be increased to 65deg or 70deg at night, and in the day to 70deg or 75deg, maintaining 85deg or 90deg throughout the day by sun heat; ventilate from 75deg, and close early, with plenty of atmospheric moisture. This is only advisable when it is desired to accelerate the ripening of the fruit, a temperature of 60deg to 65deg at night, 70deg to 75deg by day, with gleams of sun, and 10deg to 15deg rise under a cloudless sky, being better for the health of the trees. The very early varieties will soon give indications of ripening, when syringing must cease, and the leaves that shade the fruit must be drawn aside.

TREES STARTED AT THE NEW YEAR.—The weather on the whole has been favourable to the swelling of the fruits, especially where a genial temperature has been maintained, and stoning is commencing. Avoid sudden checks by injudicious ventilation, cold air in the day, causing excessive evaporation, and too high a temperature at night are fatal.

TREES STARTED EARLY IN MARCH.—These are now flowering well. Provide a little ventilation constantly at the top of the house, and lose no opportunity of ventilating freely. The night temperature should be 50deg in mild weather, falling 5deg to 10deg through the night, and in severe weather 50deg to 55deg by day, and 65deg from sun, with a free circulation of air. Let there be no mistake as to the moisture of the inside border, giving a thorough supply of water when required.—G. A., St. Albans, Herts.

The Kitchen Garden.

THE MAIN CROP OF POTATOES should now be planted. The soil ought to be thoroughly prepared by deep cultivation during autumn and early winter, in order to allow of aeration, and it may now be deeply stirred, and any artificial manure to be applied should be sown on the surface, being dug in as the planting proceeds. It is a great mistake to use half-decayed manure at this time of year, as it admits too much air to the newly-formed roots and checks growth in dry weather, and conduces to disease in wet weather.

EARLY CELERY.—The plants will now be large enough to prick off if sown as advised. High, rich soil should be used. The plants may be kept growing briskly in a temperature of 55deg near the glass, avoiding a check, as this would be noticeable later on. The trenches should now be prepared for the earliest plants, and need not be deeply dug out unless the heads are intended for exhibition. Dig into the trenches a mixture of thoroughly decayed manure, wood ashes, loam, and a little old soot. I always sow a dwarf Marrowfat Pea on the ridges, which yields an abundant crop.

LETTUCES.—Another sowing of Cos and Cabbage varieties should now be made in a warm border. The soil ought to be rich and warm in order to drive the plants on briskly, when the hearts will be crisp and good.

PARSNIPS may now be sown in deeply prepared ground. Give the rows a good distance from each other—not less than 12in. I like to drop three or four seeds in holes prepared with a blunt dibber, at intervals of 8in to 10in apart. This takes a little longer, but saves a great deal of thinning afterwards, and the hoe can be used several days earlier.

SOW THE MAIN CROP OF CARROTS on well prepared soil. Carrot seed is not germinating satisfactorily this season, consequently thicker seeding will be advisable.

SALSAFY AND SCORZONERA.—Seeds may also be sown on deeply worked soil, and give ample room between the rows.

PROTECTION FOR EARLY POTATOES.—Some kind of protection should be devised where early Potatoes are coming through the soil on warm borders. Long green rods bent over, and canvas or mats fastened to these, make a good protection.

POTATOES IN FRAMES, where sufficiently advanced, may receive a top-dressing or earthing, otherwise many of the tubers near the surface will be exposed to the sun and spoiled. Should the plants require water, see that it is given in a tepid state. Avoid cold winds by tilting the lights in the opposite direction to the prevailing wind.

CARROTS IN FRAMES may be thinned so soon as large enough to handle, and the same remark applies to Turnips.

HOING.—Keep the hoe going as much as possible in dry weather. This will conserve the moisture as well as kill myriads of seedling weeds and insects.

RADISHES.—A sowing of these should be made on a warm border. Choose one of the early varieties, such as Early Gem or French Breakfast. Birds are very fond of the seeds, therefore coat the seeds with red lead and soot.

PROTECTING SEEDLINGS AGAINST BIRDS.—Seedlings of Cauliflowers, Sprouts, and other plants require protection. There is nothing better than $\frac{1}{2}$ in garden netting, supported at some distance above the plants by means of cross-rods.—A. T., Cirencester.

The Flower Garden.

LAYING DOWN LAWNS FOR GRASS.—Excellent lawns and grass plots may be established by sowing seed. Selections of fine lawn grass seeds are readily obtainable from seedsmen for all kinds of soil. Lawns for playing tennis, croquet, bowls must be level; therefore, before sowing the seed, get the ground thoroughly firm, level, and the soil fine. Sow the seed at the rate of a quart to 300 square feet, distributing it evenly on a calm day. Cover with a layer of fine soil, and when dry pass the roller over. Should birds be troublesome black cotton may be stretched over the ground. Existing lawns requiring renovation should have faulty places scratched over with the rake, and grass seeds may be sown thickly. Cover with fine soil and roll down.

TRANSPLANTING CALCEOLARIAS.—Shrubby Calceolarias which have been wintered and rooted in frames from cuttings inserted in autumn are now ready for lifting and transplanting in temporary frames, so that they may have more room and an opportunity to multiply their roots in some richer material. For this purpose mix up some loam and decayed manure from an old hotbed. Plant the Calceolarias 4in to 6in apart, the plants having previously been stopped. Give temporary protection on frosty nights. Water at first should scarcely be required, but in mild, dry weather give a good soaking. When the shoots have grown a few inches top them again. The final planting should take place early in May.

STARTING DAHLIAS IN FRAMES.—Old roots of Dahlias may be brought from their winter quarters, and all that are

sound at the crown plant in some light soil in a cold frame. Keep the lights closed, and growths will soon start. If more are required the roots may then be divided, each division having growths attached. Some of the old tuberous roots will be superfluous, and should be detached. Plant these divisions again in the frame for a time before lifting, and finally planting in flowering positions, which may be done towards the end of May.

FLOWER AND SHRUBBERY BORDERS.—Make these clean and tidy by running the hoe through the soil, breaking up the lumps, destroying seedling weeds, and leaving the surface fresh.—E. D. S., Gravesend.

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible, with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

Scottish v. English Gardeners.

It hardly seemed worth while to answer "Scot's" question regarding the merits of English and Scottish gardeners, but none of his contemporaries appear to have remembered the fact that the superiority of the Scots gardener which may have obtained in years gone by, was due solely to the fact that a certain amount of education was always necessary to the gardener. Education of this nature became general in Scotland at an earlier period than in England, therefore the Scots gardener had this immense advantage over his English confrere, and one must admit that in days gone by he made the most of it. This advantage does not exist to-day. In my opinion the young Scots gardener is apt to place too much reliance on the superiority of his ancestors, and a recent experience is a case in point:—A young Scot straight from the "Land o' Cakes" (and therefore uncontaminated with anything English), well fortified with verbal evidence of the superiority of his forbears, came to take a charge of some houses. Nothing, however, would induce him to show in a practical direction any of these qualities. This was specially noted in the daily routine. Thrips, red spider, &c., were becoming most formidable. Syringing was such hard work. The almost daily loss or leakage of some vital part of the syringe or engine no doubt eased the operator somewhat, but the prompt renewal of these essentials did not have the desired effect. Things came to a climax when he appeared at his work in a most sumptuous pair of gent's evening shoes of patent leather and silk bows!—A SPECTATOR.

[This discussion is now closed.—Ed.]

The Post Office Savings Bank.

Having read the note from "G." asking what "An Old Boy" would have a young man do if he desires to get on, perhaps my experience may help him. Having had eight years in a bothy I think I can safely speak upon this subject. During my term I have met many young men who have been rather "wild," and who never had a penny after Monday; and one fellow I had to lend ten shillings for him to go home on holiday. I am thankful to say this, however, that was the worst one; and, working with many young men, I have had the pleasure of being the means of their starting an account in the savings bank. I have met young fellows who have been good-hearted, hard-working chaps, but lacking the great quality of knowing how to save.

I am a chap who likes "a pipe" and "a glass" now and again, and also a little enjoyment when I can spare the time; and I am pleased to be the holder of a little banking account. Perhaps how I manage will help some of those who have never thought how much they can save on a little income. I get 18s. a week. Each week I put 6s. aside for my bank book, 1s. for tobacco, 6d. for washing, and 7s. for food, leaving me 3s. 6d. for clothes and pleasure, which is quite enough for myself. I am very pleased to say that all the men in this bothy are steady, saving fellows, and study their duties; but, in closing, let me add, Never be what is called mean, or success you will never find. Wishing everyone the contentment that I have, let me sign myself—A JOURNEYMAN (Sussex).

PRINTING TRADES.—We are informed that an international printing, stationery, and allied trades' exhibition will take place in the Agricultural Hall, Islington, London, N., from Saturday, April 30, to Saturday, May 14, 1904, inclusive.

A LUCKY TURNIP.—The Turnip which George Goodricke, in November, took from a field at Scarborough because he was hungry, and which led to him being sent to prison for seven days, has turned out a very lucky one. His treatment excited great public sympathy. His fine was paid and money was sent for him from all parts of the country. Goodricke is now on his way to Toronto, outfit and passage having been paid for out of money sent. He is a timmer, and was at one time in business in Scarborough. At Toronto he will make a new start.

THE BEE-KEEPER.

The Stewarton Hive.

In reply to "Stewarton," I would say that catalogue prices do admittedly differ, but if the cheapest price quoted be taken of the requisite number of boxes for the production of a specified quantity of honey in a frame hive, and compared with those necessary for the Stewarton, you will find there is a disparity in favour of the former. Where the prospective apiarist can make his own hives, he may do so on the score of economy, but considerably more difficulty would be experienced in making the octagonal Stewarton than the bar-frame, which is practically a square box. The empty box question is evidently governed by the law of supply and demand. There are so many used locally for packing purposes that two firms are employed making them.

"Hexagonal" also inquires about this hive. The brood nest is always extended more rapidly downwards, therefore additional room should be given underneath. Super space is given gradually in order to conserve the heat. The instinct of the bees is to fill whatever space there is above the brood nest, and they appear to work more energetically when the super is on the point of completion, so that by gradual extension there is a constant excitement and energy maintained. All the slides in the lower body box must be opened and the two treated as one chamber. One entrance, as you suggest, will be quite sufficient, i.e., at the bottom.

The following extract from one of the speeches of Mr. Cowan (the editor of the "British Bee Journal") will show why young queens should be kept. "Mr. Cowan proceeded to observe that in America they had at last come to the decision that you must have young selected queens if you are to do any good. The Americans advocated keeping them three years, but he had always maintained that the second season was quite long enough, as a queen could exhaust her laying powers in that time. He thought it was to the advantage of the bee-keeper to try to exhaust the laying powers in two seasons, and replace them by purchasing young ones, as he did. If English bee-keepers were to pay more attention to selection for particular points, we should not require to import foreign bees."—E. E.

Preparation.

The bee-keeper should now commence preparing for the coming season by painting hives and putting all his appliances in order. The atmospheric conditions during the month will no doubt encourage the growth of the Crocus, the blooming of which usually marks the time for the commencement of spring stimulation, and the bees become active; but, should a sudden frost occur, it will force them to contract themselves to the smallest compass. Nothing further in the way of stimulation is advisable yet, but rather conserve the energy of the bees. If feeding is absolutely necessary, the food must be given in the evening, and in such a quantity that the bees can take it down and store it in a few hours.

By administering food in this manner the bees are not tempted to extend the brood nest unduly. If given in the daytime, its exciting influence causes them to fly, and the consequences might be serious. The food should be composed of one pint of water to two pounds of sugar, with a tablespoonful of vinegar, as an excess of water in the syrup is an advantage in the breeding season. On fine warm days artificial pollen—pea-flour preferably, this being the best known article for the purpose—should be put into the Crocus cups, where the bees will readily take it up and carry it to the hives.

If breeding has been stimulated artificially by feeding, it will be necessary for the supplies to be kept up daily, increasing proportionately with the wants of the brood until natural supplies become sufficient, or the stocks may be in danger of starvation, and colonies which had been in an encouraging condition would dwindle and decline. Very great care is also necessary at this time of the year during feeding to prevent robbing. The entrances to hives which are being fed should be contracted, and any syrup which may be spilled should be cleared away or covered up with soil, or a little carbolic acid sprinkled over it.

The changeable temperatures during spring make it essential for the brood nest to be kept as snug as possible, so that there may be no draught through it, or any possibility of loss of heat. The entrances of hives should not be too wide, but regulated according to the necessities of the colony. It is better for them to have to ventilate during a warm spell than that they should be forced to contract during a cold one.

The atmosphere within the hive must be moist, and ventilation will be governed by the bees through the entrance, which during changes of weather may be beneficially narrowed to prevent loss of heat. A thorough examination of colonies should take place the first fine warm day when the temperature is above 60deg or thereabouts.

Floor boards should be cleansed and dried if damp, and quilts may be exchanged and disinfected, if necessary, before further use.—E. E., Sandbach.



TO CORRESPONDENTS

* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

BOOKS (H. P.).—A manual of Exotic Ferns and Selaginella, their history, culture, and management, by E. Sandford.—Elliot Stock, 62, Paternoster Row, E.C., 1894. Cactus Culture for Amateurs, by W. Watson.—L. Upcott Gill, 170, Strand, W.C., 1889.

GRAFTING (A. B.).—The method you describe of splitting the stock is cleft grafting; cutting a wedge out of the stock and fitting the scion in is wedge grafting; slitting the bark and inserting scions between it and the wood, then binding as you suggest, is the simplest form of crown grafting. We do not know to what particular notes you allude, as you do not quote the page in which they appear.

UNISEXUAL FLOWERS AND CATKINS (Ignoramus).—The Birch, Willow, Hazel, Alder, Oak, Plane, Poplar, Hornbeam and Beech are all amentaceous or catkin-bearing plants. Catkins are male or female, that is, composed wholly of male or wholly of female flowers. The Elm and the Ash are not amentaceous or catkin-bearing plants, but by abortion the flowers have a unisexual character, except in the case of the Ash, when they are sometimes bisexual.

PROPAGATING LEUCOPHYTON BROWNI (G. A. K.).—This serviceable carpeting plant is most impatient of fire heat, and the cuttings are certain to fail if subjected to it. The proper time to insert the cuttings is during the month of September, and they ought to be treated exactly the same as Violas or Calceolarias. Either three parts fill frames set on a hard dry base, with nearly exhausted heating material, or set hand-lights on a bed of the same. Cover with about 3in of fine sandy soil, face over with sharp sand, and dibble out the cuttings thickly, keeping them rather close and shaded from bright sunshine till rooted, and in all other respects treat similarly to Calceolarias. They would receive the least check when bedded out if first established in thumb pots, but keep them out of the houses.

INCREASING LOBELIAS (F. B.).—The ordinary bedding Lobelias are propagated by division and cuttings in preference to seedlings, the latter rarely being sufficiently neat growing. Bluebeard, pumila magnifica, and Brighton are all excellent blue sorts, and supposing a number of plants of either of these have been wintered in boxes in a rather low temperature, on being introduced into an early vinery or in a moist heat every shoot will quickly emit roots. These may be pulled off and dibbled in rather thickly in boxes, and eventually bedded out in cold frames, or, if a little bottom heat is available, these divisions may be placed on beds of good soil and about 4in apart each way, where they will soon grow to a good size, the frames or lights being then available for other purposes, some other protection being provided for the Lobelias. Thousands of good plants may thus be raised without much trouble. Seedling Lobelias should be pricked out before becoming crowded and weakened. The herbaceous sorts may be divided when the suckers are well above the soil.

ARTIFICIAL MANURE FOR ASTERS AND OUTDOOR CHRYSANTHEMUMS (X. Y. Z.).—As you have used about 50 tons of good stable manure per acre, and the blooms are not as good as desired, even with the addition of dissolved bone manure, you may have recourse to the following mixture: Nitrate of soda, 2 parts (lbs or cwts); sulphate of ammonia, 2; dried blood (ground), 1; dried fish (ground), 1; dissolved bonemeal, 10; muriate of potash, 4. This contains 5½ per cwt of nitrogen, 9 per cent. of phosphoric acid, and 10 per cent. of potash. The mixture may be used at the rate of 2½cwt to 5cwt per acre, 1½lb to 3½lb per rod, or in case of not using animal manure, 5cwt to 10cwt per acre, 3½lb to 7lb per rod. The fertiliser should be applied shortly in advance of placing out the plants, it not being used in immediate contact with the roots, and if used after planting out must be kept from the tops of the plants.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (H. B.).—1, Primula nivalis; 2, Scilla sibirica

alba; 3, Sedum acre aureum; 4, Blechnum occidentale. (F. L.).—1, Dendrobium Wardianum (a good form); 2, D. Ainsworthi; 3, D. nobile Ballianum. (J. P.).—1, Peperomia nigra; 2, Asarum.

Covent Garden Market.—March 30th.

Average Wholesale Prices.—Fruit.

	s. d.	s. d.		s. d.	s. d.
American Limes, 400-500			Grapes, in barrel ...	12 0	to 18 0
in case ...	7 0	to 9 0	" Muscats, A., lb.	6 0	8 0
Apples, home cookers,			" B., lb.	2 0	3 0
bush.	4 0	6 0	" Canon Hall, A., lb.	2 0	8 0
" American, brl.	12 0	15 0	" Gros Colman, A., lb.	1 6	3 6
" Californian, case	7 6	14 0	Lemons, per case ...	8 6	10 0
Bananas, bunch ...	6 0	14 0	Lychees, box ...	1 2	0 0
Chestnuts, bag ...	19 0	0 0	Oranges, per case ...	8 0	35 0
Cobnuts, per lb. ...	0 7½	0 0	Pears, per case ...	12 6	14 0
Cranberries, per case ...	10 6	13 8	" stewing, ½-sieve ...	9 0	11 0
Figs, per box ...	0 10	1 0	Pines, each ...	2 0	5 6
Grapes, Alicante, lb.	1 6	2 6	Strawberries, lb.	10 0	15 0

Average Wholesale Prices.—Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Jerusalem,			Onions, per case ...	6 0	to 6 6
sieve ...	1 0	to 1 3	" per bag ...	4 0	6 6
Asparagus, Sprue, bundle	0 10	0 0	" picklers, sieve ...	3 0	5 0
" Paris Green	4 6	6 0	" English, ewt. ...	7 6	0 0
" English, bun.	5 0	7 6	Parsley, doz. bnchs.	1 6	2 0
Beans, dwarf, per lb.	2 6	3 0	" sieve ...	0 6	0 0
" Madeira, basket	1 6	2 0	Parsnips, per bag ...	2 0	2 6
Beetroots, per bushel ...	2 6	3 6	Potatoes, per ton ...	90 0	146 0
Brussels Sprouts, sieve...	1 0	1 6	" New Teneriffe,		
Cabbages, tally ...	2 0	5 0	per cwt ...	12 0	14 0
Carrots, doz. bun.	2 0	3 6	Radishes, doz. bun.	0 9	1 0
" per bag ...	2 6	4 0	Rhubarb, per doz.	0 9	1 0
Cauliflower, doz.	1 6	3 6	Salad, small, pun., doz.	0 6	1 0
Celery, per doz. bun.	12 0	24 0	Savoy, tally ...	3 0	4 0
Cress, per doz. pun.	0 9	1 0	Seakale, per doz.	10 0	14 0
Cucumbers, doz.	7 0	10 0	Shallots, per lb.	0 1½	0 2
Endive, per doz.	1 6	0 0	Spinach, per bush...	3 0	3 6
Garlic, per lb. ...	0 2	0 3	Tomatoes, Canary		
Horseradish, foreign, per			Deeps, lb.	3 0	4 0
bundle ...	1 3	1 6	Turnips, doz. bun.	1 6	2 0
Leeks, per doz. bun.	1 6	0 0	" per bag.	2 0	2 6
Lettuces, Cabbage, doz.	1 0	1 3	Watercress, per dozen		
Mushrooms, house, lb.	1 0	1 6	bunches ...	0 4	0 8

Average Wholesale Prices.—Plants in Pots.

Most of the undermentioned plants are sold in 48 and 32-sized pots.

	s. d.	s. d.		s. d.	s. d.
Acacia Drummondii, doz.	12 0	to 50 0	Ferns in var., per doz.	4 0	to 30 0
Adiantums, per doz.	4 0	8 0	Ficus elastica, doz.	9 0	24 0
Aralias, per doz.	4 0	8 0	Genistas, doz.	6 0	10 0
Arbor Vitæ, per doz.	9 0	18 0	Hyacinths, Roman (48-		
Aspidistras, per doz.	18 0	36 0	pots), doz.	8 0	9 0
Aucubas, per doz.	4 0	8 0	" Dutch ...	8 0	12 0
Azaleas, each ...	1 6	3 6	Lycopodiums, per doz.	3 0	4 0
Begonias, per doz.	8 0	18 0	Lily of the Valley, doz.	9 0	24 0
" Gloire de Lor-			Marguerites, white...	4 0	8 0
rairie, per doz.	8 0	24 0	Orange Trees, each	3 6	10 6
Callas, per doz.	10 0	12 0	Palms, var., each	3 0	20 0
Chrysanthemum, doz.	6 0	12 0	Poinsettias, per doz.	8 0	15 0
Cinerarias, doz.	4 0	24 0	Primulas, per doz.	4 0	6 0
Coleuses, per doz.	4 0	5 0	Pteris tremula, per doz.	4 0	8 0
Crotons, per doz.	12 0	24 0	" Wimsetti "	4 0	8 0
Cyclamens, per doz.	9 0	18 0	" major "	4 0	6 0
Cyperus, per doz.	3 0	4 0	Solanums ...	4 0	6 0
Daffodils, per doz.	6 0	8 0	Spiræas, doz.	6 0	9 0
Dracenas, vars., doz.	12 0	48 0	Tulips, red, doz. roots.	1 0	0 0
Er cas, per doz.	6 0	12 0	" yellow, doz. roots	1 6	0 0
Euonymus, vars., doz.	4 0	6 0			

Average Wholesale Prices.—Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Anemones, doz. bun.	1 6	to 2 6	Narcissus, doz. bun.	1 0	to 2 0
Azaleas, per bun.	1 0	2 0	" Soleil d'Or, per doz.	3 0	4 0
Bouvardias, per bun.	0 4	0 6	" Pheasant's Eye "	2 0	4 0
Callas, per doz.	3 0	5 0	Orchid, various, per doz.	3 0	12 0
Camellias, box ...	1 6	2 6	" Odontoglossums "	2 6	3 0
Carnations, per bun.	1 0	3 0	" Cypripedium in-		
Daffodils, bunch ...	2 6	6 0	signe, per doz.	1 6	3 6
Eucharis, per doz.	3 0	4 0	Pelargoniums, zonal, doz.		
Ferns—Asparagus, bun.	1 0	2 6	bun. ...	4 0	6 0
French, doz. bunches	0 4	0 6	Poinsettias, bun.	1 6	0 0
Maidenhair, doz. bun.	4 0	6 0	Roman Hyacinths, per		
Freesia, per doz.	1 6	2 0	bunch ...	0 6	1 0
Gardenias, box of 18-24			Roses, Mermet, per doz.	3 0	6 0
blooms ...	4 0	5 0	" Various, per bun.	0 6	1 6
Lilae (French), bun.	1 6	3 0	" White "	1 6	2 0
Lilium longiflorum,			" Pink "	1 0	2 0
doz. blooms.	4 0	7 0	Smilax, per doz. trails	1 0	1 6
" lancifolium "	1 6	3 0	Snowdrops, doz.	1 0	1 6
" auratum ...	2 6	4 0	Stephanotis, per doz.	1 6	3 6
Lily of the Valley, per			Tuberose, strong, bun.	1 0	1 6
doz. bun.	6 0	15 0	" doz.	0 6	0 9
Marguerites, yellow, per			Tulips, per bunch	0 6	0 9
doz. bun.	1 0	2 0	Violets, per doz. bun.	1 6	1 9
Mignonette, per doz.	3 0	4 0	" Parma "	1 6	2 6
Mimosa (Acacia) per bun.	0 9	1 0			



Educational Muddles.

It is difficult to foresee what will be done even in the immediate future to educate our people in the principles of agriculture; but the blindest must see that there has been a considerable set back during the past twelve months, and the reason for it can be very easily found. It is the chaos which is attending, and is likely for some time longer to attend, the initiatory working of the new Education Bill.

The work connected with the organisation under the Bill has been enormous, and the education committees of the County Councils have found their hands more than full, a reasonable attendance on one of these committees having, we know, included fifty meetings within twelve months. Technical education has been neglected because the committees have been overworked, and the question of the upkeep of elementary schools has absorbed nearly all their time and attention.

A most undesirable situation has arisen, for the demands on the time of committeemen is so great that many of these best qualified by knowledge and experience to work on such committees are obliged to withdraw, and only those who have nothing else to do are able to attend sufficiently to justify their appointment. We know of one case of a chairman of an education committee a most capable man, whose services have been of inestimable value during the past year, but who is retiring altogether from the committee because it trenches too much on the time which he is obliged to devote to other business.

Again, we know a recently elected councillor who is most expert in agricultural matters, both scientific and practical, and would have been an ideal member of a technical education committee, who could not allow himself to be nominated as he could not possibly attend the fifty meetings which he would have been required to. These education committees under the new Act have far too much work, and it will have to be divided. The control of the elementary schools of any ordinary county is quite enough to occupy the attention of one committee without devoting any time to secondary and technical matters, and there should be a division of work, so that the services of the best men may be obtained. We do not believe in large committees. Two committees of ten or twelve members each, if you have the most suitable members on each, will do far more and better work than an unwieldy body of twenty-five or thirty, half of whom are not particularly interested in the questions brought forward.

As we have before stated, technical education, at any rate in the country districts, has been almost allowed to lapse in many counties, and under present circumstances there is little chance of a revival. We fear that the state of things which has been brought about by the new Act will take a great deal of remedying, one reason being that many officials appointed under its provisions have not the necessary qualifications for their positions. Family and territorial influence is often unduly exerted, and a candidate elected who is more fit to qualify for a superannuation allowance than an arduous post. Then, again, there is the friction caused by the religious animosity of rival factions, and in some counties very little has been done at all in the cause of education during the last few months, and this applies most particularly to the technical side in rural districts. Some of us had hoped that our village schools were to be made more suitable for village needs, but so far Whitehall and H.M. Inspector are as supreme as ever, and we have had no technical lectures or courses whatever this winter.

The Metric System.

As our local legislators appear to be failing in their duty of educating us to better things, we had better attempt a little education of those in higher places, and we should like to call the attention of the Board of Agriculture to the state of utter confusion which prevails as to our weights and measures. Confusion is bad enough in other branches of business, but that prevailing in the corn trade is absolutely bewildering. Imported grain is bought in centals (100lb each) as landed, and is resold

in quarters of very varying weights, or in sacks or in tons. The latter seems to be the only common denominator, for the sack may vary as much as the quarter.

Home-grown corn is sold by the quarter, the coomb, the boll, the load, &c. The quarter really means eight bushels, the coomb four, the boll two, and the load three; but, by the custom of various markets, the bushel, which is a measure, is converted into so many pounds avoirdupois, which means weight. Well, we are supposed to have Imperial weights and measures, and we are liable to fine for not having our weights and measures properly tested and stamped, but if the inspection of grain on delivery were carried out in the same way as pounds of butter are now, and a so-called sack of Wheat were found to contain only fifteen pecks, could the farmer be fined for delivering short measure when he is really selling by weight? All this tends to depreciate home produce, and to make a good living for the middleman. Farmers are apt to get very much confused as to the values of grain in various localities, and a Suffolk farmer who sells by the coomb may imagine that he is getting a great advantage over his Cumberland rival when he reads in the paper that a boll of Barley realises 7s. 6d., whilst he is making 18s. of a coomb.

In some markets a load of Wheat of three bushels means 13st 7lb nett; in others it means 13st 10lb nett.

Although it is now almost out of date, until lately seed corn was usually sold by measure, which, in the case of badly developed grain, would mean considerable advantage to the seller. Therefore a quarter of Barley sold to a maltster would mean 448lb nett, but a quarter of Barley sold to a farmer for seed would mean eight bushels measured.

Then as regards fruit, we have a variety of pecks all different weights. Potatoes are sold by ton, load, sack (of two or three different weights), cwt., &c.

We notice that the Central Chamber of Agriculture is taking up this question, and we hope that either this or the next Government may be induced to make things more uniform. There is no doubt that the adoption of the metric system is the most sensible solution of the problem. It has been adopted by other countries, and no doubt our slowness to move has done our trade great injury apart from the confusion which arises amongst home producers.

We notice that foreign Potatoes at 5s. 6d. per 8st bag are supposed to be cheaper than English at 6s. per 9st. Of course they are sold by the bag.

Ourselves, America, and Russia are the only countries that have not adopted the metric system. America is but waiting for our lead. Russia, being 100 years behind, will join in some day.

Work on the Home Farm.

At last we can record an entirely satisfactory week's work. The rain, although not entirely absent, has been rather helpful than hindering, and fair progress has been made with spring sowing—in fact, much more progress than we should have believed possible a week ago. Some barley has been sown on a really fine seed-bed, but it must be borne in mind that the land has been ploughed a long time, that we did not plough or drag the land again before the drill, thus keeping the frost mould (such as it was) on the surface, and that the chisel harrows, which did the preparation, were followed immediately by the drill, with only time for one good shower between. There has been little March dust in evidence, yet the seed-bed was quite satisfactory, and we have taken a plunge by sowing clover seeds after the drill. We may have too much clover amongst the corn, but we shall not have too much sheep pasture next spring.

We shall defer further spring sowing for a day or two, so that we can work and give a final cleaning to the land planned out for mangolds. This work has been left over later than usual, so it is quite time it was completed. The land must be most thoroughly dragged and harrowed, the couch-grass eradicated as nearly as possible, and the land ploughed and left fallow for another month. Whatever the weather in the meantime may be, there should be no lack of either moisture or good tilth. Clover seeds vary much in quality and are still far from cheap, and as farmers have not too much ready money, they are rather inclined to buy the cheaper classes of seed.

As, however, a good sample of 95 per cent. germination can usually produce more healthy plants from 10lb of seed than a second class sample can from 14lb, apart from the superior character of the plants, it is obvious that the common seed should cost 25 per cent., or 2s. 6d. per 14lb, less than the best seed, to merely attempt to be on even terms.

At the spring sales about here we see young cattle make excellent prices, leaving very little margin for the feeding grazier. If a calf can be made to realise £10 at 12 months, it seems bad policy to keep it longer. We would rather sell it for someone else's amusement and benefit. At the same time, it is very certain that young cattle of good quality are very scarce just now, and September next may show us that the beef market leaves a fair margin of profit for the feeder.

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Journal of Horticulture.

THURSDAY, APRIL 7, 1904.

Gardening for the Young.

AT the present time, when what may be termed a great wave of horticultural interest is sweeping over the land, it is gratifying to note that all sections of the community seem to be in real earnest in regard to fostering and developing the gardening instinct in the young. It is now generally recognised on all sides that the teaching of the past has had too great a tendency to divert the attention of the young from the engrossing interests of country life instead of causing them to take an intelligent interest in the wonders of Nature's open book.

The country is often voted dull, but with eyes to see, and intelligence to understand, every leaf, every tree, every blade of grass, and the simplest operations of garden or field are invested with new life and charm. It is undoubtedly good for all to know something of Nature's work, and to study her in some of her many moods; for no matter whether the after life of the individual is spent in town or country, the lessons learned in early days will prove a source of constant pleasure in later life.

As recreation for leisure hours the pursuit of gardening is, by reason of its soothing influence of immense benefit in combating the disastrous effects of the rush of modern days. Brain fag, indigestion, and kindred ailments seem to be spoken of every day as being the penalties some must necessarily pay for existence; but I am firmly convinced of this, that in the next generation we should hear but little of such ailments if everybody from the present time took to spending some of their leisure hours in the pursuit of gardening, or in obtaining similarly healthful exercise in the open air.

The great thing now is to get the young interested in matters which will make for their future health and happiness, and help them to become useful members of the community. Up to the present time but little has been done in this country to encourage gardening in elementary schools, but an improvement in this respect

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

is now taking place, for in many country schools gardens are being established, and there is every prospect that in time such gardens will be attached to all rural schools. With admirable forethought the Royal Horticultural Society has arranged to hold a special examination for teachers, and it is hoped that many will avail themselves of the opportunity to obtain proof of their competency to teach the subject. The syllabus on which the examination is based is of such a character as to ensure that those who pass have a good knowledge of the practical management of such plots as will be attached to schools. It is essentially "cottage gardening," and there is therefore no necessity to cumber the syllabus with extraneous matter. It is far better to have practical gardening well taught, so as to enable the pupils to obtain good results, than to make practice subservient to theory. On the other hand, the theory which is taught in school may be demonstrated on the garden plots, and, by thus connecting the two, the pupils will gradually obtain both a wider interest and knowledge in their lessons, because their perceptive and reasoning faculties, as well as their manual dexterity, will be developed. That the boys like this new addition to their school curriculum is manifested by the eagerness they display throughout their gardening lesson. To see them digging, sowing, planting, hoeing, raking, or making things generally tidy must be a pleasure to anyone, and a revelation to those who have not felt the promptings of the gardening instinct. It is, indeed, an apt illustration of overflowing vitality directed into natural channels.

The teaching in theory as far as possible by natural illustrations is also to be commended. Take, for instance, the germination of seeds; even when taught from illustrations in books it is decidedly interesting, but infinitely more so when real seeds are used to illustrate the various points. It is an easy matter to soak some in water for a few hours, for the purpose of easy dissection, and to sow others in boxes of soil to show the various stages of germination. Point out to the boys the hilum, the testa, the micropyle, the cotyledons, the radicle, and plumule. Show how diverse are the ways of different types of seeds in the various stages of development, and the characteristics of Monocotyledons and Dicotyledons.

Do all these things, and you will soon find the youngsters in their spare moments practising the art of dissection and classification on whatever seeds come within their reach. And by thus arousing their interest, and stimulating their powers of observation, a sure foundation will be laid, upon which some at least will rear achievements in the future, and all will be benefited in whatever sphere of life their lot may be cast. In other directions, too, a similar system of natural demonstration can be followed with advantage, instead of adhering to the too often "dry as dust" methods which have so long prevailed.—H. D.

Novel Dinner Decorations.

A contributor in the "American Florist" observes that there seems to be a general tendency for customers to use their own vases and silverware for dinner decorations. At a dinner dance for a large party a plateau 5ft across was used. This was filled with *Adiantum Farleyense* in pots with a superb silver plate in the centre, with one large plant of *A. Farleyense*. The flowers used were *Cattleyas* and *Lælia aneeps*. This combination was also used on the tablecloth. Small tables were furnished for the refreshments after the dance, each one being decorated with Liberty Roses and *Cypripedium insigne*, arranged in silver cups won by famous horses on the race track or at the horse show.

On another similar occasion a centrepiece of white Lilac and giant Mignonette was used, a large fern dish being utilised instead of the usual basket, the handsome silver receptacle showing out here and there through the flowers. Asparagus Sprengeri and white Sweet Peas made the finishing touches, giving a white and green effect of simple elegance. At another dinner loving-cups abounded. These were surrounded by 12in wreaths of pink Carnations and *Adiantum euneatum*, the cups being left empty.

The following arrangement was also very effective. In this case vases of hammered copper were used. These were filled with *Narcissus Golden Spur*, large bows of yellow ribbon being used.

Spring flowers are now here in great abundance, and are being called for extensively for table work. English Wallflowers and the orange-coloured Tulips make a beautiful combination for a luncheon. Gold cords and tassels are something new for Violets, and are especially good tied in with violet ribbon.

Our contemporary also figures a "Confederate Flag on an Easel" done in flowers. It stood 8ft high, made of red Carnations and Violets and the stars of white Carnations. The top of the flag pole was a half-blown Easter Lily tied with ehenille tassels. Bronze Galax leaves filled the space between the flag and the border, which was made of Bride Roses, white Hyacinths, Smilax, and Maidenhair Ferns. The lettering was done with pink felt letters on the white satin ribbon. The drapery at the bottom of the design was of white tulle and black erepe.



Lælio-cattleya × *Digbyana Trianæ*.

The two orchids, *Lælia* (*Brassavola*) *Digbyana* and *Cattleya Trianæ* have been often crossed, but the issue has appeared in a number of forms of different sizes and character. A number of recent hybrids from these parents, or at least having *L. Digbyana* as one parent, have been seen within the last few years. Messrs. Veitch were, we believe, first in the field, and the hybrid which we figure this week was raised by them, and received a first class certificate in 1897. The form and size of the individual flowers are well shown in our engraving. The fringe of the lip is coloured rose-purple, and within the frilling the shade is yellow, extending to the throat, at the base of which there are some chocolate veins. Both the sepals and petals are delicate blush-rose.

Cypripediums at Henbury.

I recently had the pleasure of a look through the very choice collection of *Cypripediums* formed and grown by Mr. W. E. Budgett, of Henbury, near Bristol. This gentleman makes a special study of *Cypripediums*, principally the best and rarest forms of *C. insigne*, and his collection is certainly unrivalled in the district. Prominent at the time of my visit, which was, unfortunately, after many of the flowers had passed their best, was the splendid Harefield Hall variety of *C. insigne*, this large and finely spotted form being represented by several fine specimens, profusely flowered.

C. insigne Sanderæ, a fine seedling plant, with several strong growths, and carrying two flowers, looked remarkably healthy, as, indeed, do all the plants. Hundreds of flowers in great variety were open, and there is not a poor form amongst them all. *C. Leeannum* was well represented, the noble variety *Clinkaberryannum* calling for especial comment. It is extremely doubtful if there are many plants or varieties in existence as fine as Mr. Budgett's, the dorsal sepal being simply immense, the whole flower of very massive build, and extremely fine in colour.

It is worthy of mention that Mr. Budgett has achieved this success in one or two small and inconvenient houses, not by any means specially suited for orchid growing. Hybridising is going on, and there are several interesting crosses already in flower, including one of which the parentage is lost, but which looks a good deal like a hybrid between *C. Leeannum* and *C. Arthurianum* and a lovely little cross from *C. niveum*.

Scores of seedlings in all stages of development, from the tiniest single leaf infants in the compost of their parents, to healthy youngsters showing flower, are grown in a small lean-to structure, and as these are all correctly labelled with their parentage, they will be extremely interesting as they come into line. Mr. Budgett is to be heartily congratulated upon the success he has achieved in a very few years; but his motto is, Buy of the best, and treat them well; and that it is a correct one his collection amply proves.—H. R. R.

Cultural Notes.

The later plants of *Odontoglossum citrosimum* should be frequently examined now, and as soon as the very first sign of the spikes is seen the plants must at once be thoroughly soaked in a pail or tub of tepid water. It is more necessary now to take them at once than earlier in the season, as some amount of exhaustion usually occurs after the long drying they have been subjected to. By the middle of the present month all will probably be showing that are going to flower, and the whole of the plants may then be watered.

Miltonia vexillaria is rapidly advancing for flower, and the plants need every encouragement. Some growers use liquid manure with excellent results, that made from clarified soot water and cow manure lightly diluted being best for them. I do not advise beginners to use this on their plants, as it is dangerous unless very judiciously applied; but for damping between the plants and under the stages it may be used with perfect safety, causing an ammoniated atmosphere very congenial to this species. Insects are always most busy just at the flowering stage, and a couple of light vaporisings just when the spikes are forming will be excellent practice.

When the amateur may use stimulants safely is upon large, heavy specimens of *Cymbidium Lowianum*, *C. giganteum*, and *C. Tracyanum*, *Zygopetalum Mackayi*, *Angraecum eburneum*, and such like plants. These when thoroughly rooted and growing freely can hardly be over-watered, and the stimulants act beneficially to the forming spikes. It is a lot of trouble to be annually repotting these large plants; besides which, the pots would in a few years be very unwieldy, but by the use of a stimulant they may be kept healthy, yet within bounds.

The weather during the past week has been very trying to

orchidists, cold nights and very bright mornings being followed by cold storms in the afternoon, a cold piercing wind blowing even when the sun is at its brightest. Early morning ventilation has been necessary, but only the least chink of air must be allowed at first, not sufficient to cause a draught. Stages, floors, and walls must be constantly damped, and the warm house closed soon after midday, only sufficient heat being kept on the pipes to maintain the temperature. The lower ventilators in the brickwork where provided may now be left slightly open day and night, and as the days get warmer opened to their full extent by about 10 a.m.—H. R. R.

Cypripedium insigne Sanderæ.

In a recent issue "American Gardening" figures what it terms "the finest known specimen of this rare orchid." The illustration is taken from a plant in the collection of C. G. Roebling, Esq., Trenton, N.J. The variety was imported with what is now known as the "montanum" form of *C. insigne*, and which has been very prolific in fine and distinct varieties. *Cypripedium insigne Sanderæ* first came into gardens in the last decade of last century, and was at once divided into two plants, one being sold at auction for 350 dollars, and the other going to Baron Schröder for a like sum. From the former

New Dahlias for 1904.

Although it is an undoubted fact that many varieties of Dahlias which receive first class certificates eventually are failures, yet so well do the committees sift out the best that I might say, in ninety-nine cases out of a hundred, the finest flowers are the ones which receive most recognition, and very few indeed are the good things which fail to win honours. In the following arrangement I have given the certificated varieties of last autumn.

A very notable feature of this year's novelties is the addition of several which are of light, delicate colouring, several lovely pinkish varieties being amongst them. This is a great advance, as up to this year pink and similar shades have been sadly wanting in Cactus Dahlias, and it is to be hoped that at least some of these now appearing for the first time will become standard flowers. One or two varieties are also very distinct in other colours, the lot as a whole bidding fair to prove an addition to the Cactus family.

The recognised leading Dahlia committees are those attending the National Dahlia Society's two shows—i.e., London and



Lælio-cattleya × Digbyana Trianae.

have been propagated all the plants in cultivation to-day, and very many thousands of dollars have been made by it. Mr. F. L. Ames had the first plant to come to America. The plant which went to the Baron's collection has never been divided, but grown on as one plant, and at a meeting of the Royal Horticultural Society in London on December last was shown with eight flowers; another plant at the same time was shown by Mr. Norman Cookson having ten flowers, and was awarded a cultural certificate as being the finest specimen to date.

Manchester; and also the Royal Horticultural Society's several meetings, together with the London Dahlia Union. On September 1 and 2 last year something like seventy seedlings were placed before the committee, and six received first class certificates, many very fine flowers being passed over, some without a proposal, others failing to secure a majority when put to the vote. The six certificated were:—1. Mrs. H. L. Brousson, of a delicate salmon colour, large flower, fine petals, and a stiff stem, form slightly incurving. This variety was also awarded

the president's silver medal (N.D.S.) as the best bunch of bloom in the professional classes for bunches. 2. Florence M. Stredwick, white flower, very deep; back petals reflex, centre ones incurved, making quite a globular bloom, of very fair size; fine, as seen on several occasions last autumn. 3. H. W. Sillem, purplish crimson; very large flower and finest petals. 4. Pearl, lovely rich pink, with lighter tips to petals, and of beautiful form. 5. Sirius, Fancy Cactus of brilliant colour, yellow ground striped, speckled, and splashed with scarlet; petals narrow throughout entire length; strong flower stems. 6. Mrs. J. W. Wilkinson, very large flower, and of a colour long wanted in Cactus Dahlias—deep rosy pink; a fine, tapering flower.

At the next committee meeting, that of the National Dahlia Society held at Manchester, five varieties were honoured, including two of the Fancy Cactus section. These were:—Comet, with a beautiful delicate pink ground, thickly striped and speckled with crimson, petals evenly incurved, and the flower boasts an exceptionally erect stem; and Hereward, pure white ground, with crimson stripes, and of good form. The stems are strong. This might be described as an improved "Alpha." Other Manchester certificates were:—Mary, a pompon-Cactus of a deep pink colour and pretty form, likely to prove an addition to the section; Rainbow, possessing a charming tint of light pink, with the very narrowest of petals, though not numerous; George Gordon, a large flower of the finest incurved Cactus form, and in colour yellow in the centre, with the older petals shading to orange. It has a strong stem.

At the next meeting, that held at the Drill Hall on September 15, the committees of the R.H.S. and N.D.S. amalgamated, and certificated Dainty, a yellow variety, shaded pink and tipped with orange; a pretty combination of colours, the flower being of good form and size. Also Sweet Nell, pink at the upper portion of the petals, lighter at the base, with slightly incurving florets; a pretty colour and good form.

At the last show, that of the London Dahlia Union, several varieties not before certified were then honoured, while other varieties repeated their previous successes. The new arrivals were Violetta, with very large flowers of reflex form, and long petals; the colour, as its name implies, is very distinct. Premier, crimson-scarlet, with the very finest petals, very numerous and incurved, forming refined flowers. Lauretta, a beautifully-coloured variety, yellow-edged, tipped and shaded with rosy red, which gives the flower a burnished appearance; it has an incurved form. Mrs. Colin Campbell is yellow, slightly shaded, and possesses very long, narrow, incurved florets, forming large flowers; and very fine as shown. Ella Kraemar furnishes the loveliest pink, with a lighter shade at the base; the petals are even, incurving, and pointed, the blooms being of fine size.

As usual, the Cactus section gained the lion's share of the certificates, but some good things were added in the other sections, doubles being represented by Bloodhound, colour red, and of most approved form and large. The best pompons were Edina, yellow, slightly reddish at tips of petals, small and round; Queen of Whites, pure white, of ideal form, being perfectly round and of small size; San Toy, white, edged and tipped carmine, distinct and pretty; Silvia, pinkish-white, rosy tips, neat and round. One or two notable additions to the singles must be recorded, certificates being awarded to Darkness, of maroon colour, and having a most approved form; a fine addition. Princess of Wales, pink, similar in colour to the old Cactus variety. Rosebank Scarlet, a rich novelty, with fine form. Bessie, deep red eye, with brownish orange tips; novel and distinct.

Appended are given the names of the various flowers, with those of their raisers:—

Mrs. H. L. Brousson (J. Stredwick and Son).	Dainty (Hobbies, Ltd.).
Florence M. Stredwick (Stredwick).	Sweet Nell (Hobbies, Ltd.).
H. W. Sillem (H. Shoesmith).	Lauretta (Burrell).
Pearl (Stredwick).	Ella Kraemar (Stredwick).
Sirius (Stredwick).	Mrs. Colin Campbell (W. Baxter).
Mrs. J. W. Wilkinson (Stredwick).	Edina (Chas. Turner).
Mary (W. Treseder).	Queen of Whites (Turner).
Comet (Stredwick).	San Toy (Turner).
Hereward (Stredwick).	Silvia (Turner).
Violetta (J. Burrell & Co.).	Darkness (J. Cheal & Sons).
George Gordon (Stredwick).	Princess of Wales (Cheal).
Premier (J. Burrell & Co.).	Rosebank Scarlet (Edward Mawley).
Rainbow (Stredwick).	Bessie (Seale).
	Bloodhound (Mortimer).

New Aster, Miss Kate Lock.

This Aster originated from the Branching and Washington Asters. The flowers, which resemble the Truffaut in form, measure from five to seven inches across, with stems 36 to 39 in long on fine robust plants, about fifteen blooms on very stiff stems to each plant. The flowers can be easily and artistically arranged when cut. This Aster will take a prominent place in the market for cut blooms as soon as it is better known.

NOTES

NOTICES

The Market Gardeners' Act.

A Bill has been introduced to make clear "What was originally intended" by the Market Gardeners' Act of 1895—that tenants should be compensated for unexhausted improvements. The decision of the Court of Appeal in a case in 1901 rendered this necessary.

Mr. Findlay and his Potatoes.

At the last Birmingham fat stock show, Farmer Atkinson, of Weston St. Mary, Spalding, Lines., bargained with Mr. Findlay, of Mairsland, to deliver to him 14lb of Eldorado Potatoes at one guinea per lb. Subsequently Eldorados went up considerably in price, and a higher figure was demanded. In the Cupar Sheriff's Court, Mr. Findlay has been held to his bargain, notwithstanding his contention that he had only 45cwt. of this particular variety, for which £100 per tuber was now being given.

Midland Daffodil Society's Show.

The committee of this society have decided, on account of the lateness of the season, to postpone the exhibition until Tuesday and Wednesday, April 26 and 27—that is, instead of Thursday and Friday, April 21 and 22; and, again, it will not in any way clash with the other shows which are being held on the 21st and 22nd, viz., Wisbech, Ipswich, Norwich, and Colchester. The Rev. G. H. Engleheart will exhibit as usual a set of new seedlings, which are generally one of the leading features of the show.—H. SMITH, Tenby Street, Birmingham.

Fruit and Sugar in the West Indies.

The growth in the value of the fruit annually exported from the West Indies is proportionately far more rapid than the decline in the value of the exports of sugar therefrom. The recent return showing the value of the exports of sugar and fruit from the West Indies to the United Kingdom, Canada, the United States, and other foreign countries in the years 1899-1900 and 1902-1903 gives figures which go far to justify such an assumption. Thus, the exports of sugar to the United Kingdom in the former year were valued at £619,642, in the latter at £434,486, a decline of £185,156; to the United States, £2,067,615 and £1,482,033, a decline of £585,582; while to Canada the value rose from £51,312 to £173,008, an increase of £121,696. Fruit exports to the United Kingdom rose from £45,646 to £142,008, an increase of £96,362; to the United States from £816,999 to £1,186,501, an increase of £369,502; and to Canada from £6,991 to £28,639, an increase of £21,648. Summed up, these items show that the exports of sugar to the three countries dropped from £2,738,569 to £2,089,527, a decline of £649,042; those of fruit rose from £869,636 to £1,357,148, an increase of £487,512.

Market Flowers for Easter.

White flowers of English growth are first favourites in the trade at Easter. The chief of these is *Lilium longiflorum*. It is forced in large quantities by country cultivators. It is now making from 18s. to 72s. per dozen bunches. Yet competition for choice specimens is keen. The city retail florist always gives it the most conspicuous position in the shop window at Easter. The flowering plants are sold also, in pots. They are excellent for decoration. They cost from 12s. to 24s. a dozen pots wholesale. *Lilium lancifolium* is a cheaper form of Easter Lily, but it is a good second to longiflorum. The Calla is an old Easter favourite. It is to be seen on show in every flower shop at the present time, and is cheap. Possibly more of these flowers are grown for sale at Easter than any other kind that could be mentioned. White Lily of the Valley, especially the large belled kinds, such as *Excelsior*, are making fancy prices. These run from 15s. to 18s. a dozen small bunches, with only twelve sprays to the bunch. One large distributor in Hertfordshire forces over 1,750,000 crowns each year. The Lily of the Valley is not so popular at this season as the giant *Liliums*, but the buttonhole florists use it largely for the holiday folk, hence its high value.

Royal Caledonian Horticultural Society:—The Essay Prize-winners.

This society, in view of the improvement of its membership during the past two years, and in view of the International Horticultural Show to be held in 1905, is endeavouring to continue the increase of its membership; and at a meeting of the council held in Edinburgh on Wednesday, March 30, thirty-two new members were admitted. The essays sent in in competition for Mr. and Mrs. Martin White's prizes for essays on "The Cutting and Preserving of Flowers in Water," were submitted with the judges' recommendations, and on opening the sealed envelopes it was found that the prizes were to be awarded in the following order:—1st, Mr. R. P. Brotherston, The Gardens, Tyninghame, Prestonkirk; 2nd, Miss Perkins, care of Messrs. J. and A. Seth, florists, Queensferry Street, Edinburgh; 3rd, Mrs. E. J. Castle, Fairview, Fallsbrook Road, Streatham; and Miss Mary Grant, House Hill, Nairn, equal. Twenty-three plans have been sent in for adjudication in the Plan Competition open to under gardeners. The awards will be announced at the society's show on May 25.

Market Gardening Notes.

White Roses, Hyacinths, Camellias, and Spiræa are largely on the market. With the exception of the latter, these are all on sale at reasonable prices. The supplies are abundant, and the white Roses especially meet a very large demand, both as cut bloom and as pot plants in full flower. The Spiræa is selling from 6s. to 8s. a dozen bunches. The English Niphetos Rose is being pushed this year for the Easter season. It is one of the prettiest white Roses in cultivation. Its long buds are very striking. The Nareissi from Cornwall are being distributed throughout the Midland markets in great quantities. They are remarkably cheap, too, for the time of year. In many city centres the Cornish Nareissi form the bulk of the cut flowers disposed of at Easter. The supplies from Scilly are nearly over, so that cheap Cornish blooms will be welcomed by the public. Every class of the community is now catered for at this season. Forced flower growers make a special feature of the Easter trade. The salesmen are busy daily disposing of the stocks which arrive almost hourly in the markets.

A Horticultural Amalgamation.

The sixth annual report of the Southern Counties Carnation Society, lately published, will be the last issued by that society. In the report the committee express their satisfaction with the excellence of the show held in 1903, and point out the great advance in the culture and knowledge of the flower which the society has been so anxious to promote. Unfortunately, through the non-success of the society financially, a considerable burden has had to be met personally by the hon. secretary and treasurer, Mr. W. Garton, jun., a responsibility he felt he could not continue any longer, and he has reluctantly placed his resignation in the hands of the committee. The report winds up as follows:—"After most careful consideration, it has been decided to accept Mr. Garton's resignation, with the greatest regret, and, as your committee are of opinion that, under the circumstances, it will not be possible to make the society self-supporting, they have decided to close the same as from December 31, 1903." Since the above report was written the council of the Southampton Royal Horticultural Society has been approached with a request that they would take up the work of the late Carnation Society. The members of the last-named society have been canvassed by circular, and a very large majority have consented to transfer their subscriptions to the Horticultural Society, several doubling the amount conditionally upon that society continuing the Carnation shows. The representatives of the committees of the two societies met March 29, and arranged satisfactory terms for the amalgamation of the societies, and, provisionally on confirmation by the council of the R.H.S., a committee was appointed to revise the schedule of prizes, to which some very handsome donations have been promised. It was also resolved to hold the show on the Pier at the end of July, the date being left open for the present. The council of the society met on the following Thursday evening and unanimously confirmed the arrangement made by the committee for the amalgamation. The special committee will include Mr. W. Garton, jun., and several members of the late Carnation Society. The schedule of prizes will be ready in about a fortnight, and may be obtained of Mr. C. S. Fudge, the secretary, London Road, Southampton.

The Hailstorm Insurance Corporation.

We have received a copy of the ninth annual report, and the accounts show that the business of the company is increasing. The ninth annual general meeting is to be held to-morrow (Friday), at 3 o'clock p.m., at 41, King Street, Covent Garden, London.

Handsworth Horticultural Society.

The twentieth annual exhibition and floral fête of this society will be held in the Victoria Park, Handsworth, on July 22 and 23 this year, when upwards of £500 will be given in prizes. We inadvertently stated on page 275 that the Hanley, and not the Handsworth Show, would take place on these dates. Hanley Show is on July 6 and 7.

Sussex Weather.

The total rainfall at Abbot's Leigh, Haywards Heath, for the past month was 1.22in, being 0.69in below the average. The heaviest fall was 0.26in. Rain fell on fourteen days; total fall for the quarter 10.52in. The maximum temperature was 58deg on the 9th, the minimum 22deg on the 1st; mean maximum, 47.23deg; mean minimum, 33.26deg; mean temperature, 40.24deg, which is 0.66 below the average. A dry month, but cold; last week, very changeable; thunder on two days, with frequent showers of cold rain and hail; vegetation late.—R. I.

Weather Notes from Newton Mearns, N.B.

March has gone, and we can say "March many weathers." It had not so many remarkable changes as February, and it was a month with which little fault could be found, even by the farmers. Its features were—First week:—Cold, cloudy, damp, and sunless, with snow; winds from east, sharp frosts and temperature below average. Second week:—Absence of rain, more sunshine, drying winds, high temperature. Third week:—Cooler weather set in, winds from north and north-east with keen frosts. At the spring equinox on the 21st the wind blew from south and south-west with comparative mild weather, though less sunshine than in second week. Last week:—Excessive sunshine, sharp frosts (12deg to 15deg), pleasant warmth in the height of the day, winds from north, except on 27th and 28th, when they blew from south to south-west, with rain, but on 29th sun again returned with a promise of good weather till end of the month. The rainfall of March was less than the average, and there is no month of which the same can be said since the month of May, 1903. The snowfall of March was less than the average. As a rule more snow falls in Scotland in March than in any month of the year, and it is in March we hear of the great railway blocks. March has also been noted for its absence of strong winds—on no occasion has the wind risen to the force of a strong gale.—N. R.

The Alexander Peach Outdoors.

Though so often disappointing under glass, this Peach seldom fails, or gives trouble through bud-dropping when growing outdoors on a south wall. Indeed, we find that it sets so freely that a good deal of time is required to sufficiently thin them down. Unless this is done early there is much loss in size and quality, the latter being a point that demands a passing thought, because at its best it is considered only second rate. Be that as it may, the variety is a valuable one, particularly in gardens where there is not glass accommodation for foreign Peaches. The crop ripens in July early or later in the month according to the nature of the season, and the aspect and shelter afforded. As a forcing variety I have long since discarded this and Waterloo, which is a similar Peach in every respect. Amsden June supersedes it under glass, and possibly it may do so outdoors; grown side by side, but having trees already established of the first two named, there would certainly be no gain in substituting the one for the other. There is a useful hardiness about the Alexander, which in a season like that of 1903 is most desirable; then, though at blossoming time the flowers all appeared to be blackened and dead, almost an average crop resulted on this particular kind, while older standard sorts only had an occasional fruit remaining. The colour develops to a hightone if the foliage is kept under restraint and the trees well fed, and if the crop is so regulated that no excess occur in numbers, the fruit grows to a large size, and develops for so early in the season a most commendable flavour.—W. S.



Noteworthy New Plants.

A new Begonia of the semperflorens section is *B. s. coccinea* fl. pl., excellent for lawn-bedding and edging. Plants of this new variety are compact, bushy, and not more than 4in high, covered all summer with bright scarlet double flowers. It was awarded the gold medal for best bedding plant by the Royal Horticultural Society of Vienna last summer. Another novelty, similar in character to the above, also fine for edging and border planting, is *Ageratum Blausternchen* (little blue star), height three to four inches, flowers of a beautiful sky-blue, produced in profusion all through the season.

Geranium pratense fl.-pl.

The true Geraniums which adorn the hardy plant borders are eligible for a place in the finest collections; and the one we figure may be classed as both well-known and thoroughly deserving of appreciation. The type is a beautiful British plant, growing 2ft to 3ft high, with round, downy stems and leaves, as shown in the woodcut. The blue flowers are bright and effective, and those of the double variety last well when cut. Besides the blue, there is also a double white variety. In the re-arranging or planting of the herbaceous border, or the rockery, space ought to be found for some of the Geraniums.

Carnation Mrs. T. W. Lawson.

This splendid variety is gaining more friends every year, and well it may, for since the conditions under which it thrives best have become better understood, it has proved itself the most profitable Carnation now cultivated. A writer in the "American Florist" attributes his success to care in taking cuttings from only the most vigorous and healthy plants. The writer there says:—"After they have been rooted and taken out of the sand, we discard all that show any signs of weakness, and after they have been potted four or five weeks we go through the batch and throw out all that are not growing properly. In this way we get rid of the weak portion of the stock, and have left only strong, healthy plants, which make a better showing each succeeding year. I believe in growing Lawson as well as all other Carnations in pots. Those that were potted early in 2in should be repotted into 3 and finally into 4in if there is any danger of their becoming potbound and their growth being checked. But for plants that are to be grown in the field it is seldom necessary to use 4in pots. Those in threes make good, strong plants for field planting, and they lift much better in the summer than plants from smaller pots, as the 3in ball of earth usually sticks to the plant and prevents it from wilting when it is transplanted into the greenhouse. Under no consideration should the growth of the Lawson be checked. If the plants are not to be grown in the field, they should be kept moving in pots until they can be planted in the house. Last year we planted from 3in pots about June 20 in the house where they are now blooming, but we made a serious mistake in holding them in 3in six weeks too long. They should have been planted in the house May 1, or shifted into 4in pots about that time. Had we done either a much earlier and heavier crop would have resulted. The Lawson will stand stronger feeding than other varieties, but care should be taken not to use anything strong enough to injure the roots. It will take more water than most varieties, and will thrive with a good syringing on all bright days. We find it does best in a night temperature of 56deg to 58deg. Grown cooler, the flowers split, and, warmer, the flowers are too small. Nothing, however, seems to affect the stiffness of the stem. We have picked from this house (18ft by 100ft) as many as 1,060 blooms in one day, and on many occasions we have picked from 800 to 950 at one time. But these heavy pickings were after the flowers had been left three or four days. Our general average has been for some months past about 1,000 per week."

China Asters.

The improvement in China Asters is steadily going on. The last two or three years were remarkable for the number of new varieties introduced here as well as in Germany. But this season seems to have been even more prolific in this respect than any. Scores of new Asters are offered in next year's lists, of which, so it seems, a Giant Comet Aster, named Rubin (Ruby) may be found of great value to gardeners and florists, especially for cutting. It is declared to be the best of the Comets so far brought out. The flowers are of enormous size, wavy and curled, full up to the centre, not showing at any time a yellow disc, resembling Chrysanthemums to such an extent that it was mistaken for such by nearly all of the members present at a meeting of the Society for the Advancement of Horticulture, Berlin, held September 24, where it was first shown. The colour, as its name indicates, is a deep, glowing scarlet, a shade scarce in Asters.

Imperial Verbenas.

An entirely new race of Verbenas has been obtained by taking advantage of the proclivity in that genus to sport, by careful selection and continued crossing, which, it is expected, will eventually take the place of those old, emaciated varieties now in cultivation. In this new strain, introduced under the name of *Verbena hybrida grandiflora imperialis*, and being better known in Germany as the new Imperial Verbenas, a novelty of great merit is offered to the public. The habit of the plant is robust, not creeping, but boldly upright, carrying its immense trusses of bloom on sturdy stems well above the foliage. Flowers in the brightest of colours, very large single florets measuring nearly an inch in diameter, each one distinctly marked with a pure white centre or eye, rendering it most effective for massing in border plantings. On account of its compact, symmetrical growth it will be one of the finest pot plants for spring trade.

Easter Daffs.

South Lincolnshire sends London as many blooms as the Scilly Islands. Last year, more than 10,000cwt. of cut flowers—mostly Narcissi—were despatched from Spalding station alone. Indeed, for many seasons past, the railway company have granted the growers a flower rate; and at the height of the season—at Easter—are compelled to put on ten-van specials. Easter coming early this year, and the open-air bulb season, on account of the phenomenal rainfall, being about a fortnight to three weeks late, the growers have to depend upon their forcing houses. Some years back, Dr. Arthur Stiles, of Spalding, forsook medicine, and transferred his professional attentions to the growing of bulbs and blooms for the wholesale markets. The houses are the result of the doctor's diagnosis as to the special treatment required for the forcing of bulbs. Although the houses are not more than 100ft long and 20ft wide, each contains about 90,000 blooms; but some of the growers have houses containing three times the quantity. *Narcissus poeticus ornatus*, or Poet's Narciss, is favoured.

Eucharis amazonica at Carnatic Hall, Liverpool.

Readers will readily acquiesce with me in my assertion that this plant at the present period of the year is greatly appreciated. The photograph shown on page 299 represents in all ten plants in 12in pots, some of the plants carrying two dozen scapes, and each scape has an average of six flowers. They are, with us, of the easiest possible culture, the principal item to be observed being the temperature of the houses. This should not be allowed to fall below 65deg in winter. Potting need not be done any oftener than once in four or five years, the compost to consist of equal parts of rough, fibry loam, leaf mould half rotten) and cow manure, with a dash of rough sand and charcoal to keep the whole sweet. Plenty of drainage is essential, as they delight in an abundance of water at all times, winter and summer. Experience has taught me that the old fallacy of drying them off is all humbug. We get a similar quantity of flowers as represented, about three times a year, which does not say much in favour of the old drying-off process. In summer I strongly advise the use of soot and manure water mixed; also frequent and violent syringings overhead with liquid manure water, one part to six of warm water. This also acts as a good insecticide. Fairly heavy shading must be resorted to in order to prevent strong sunshine from scorching the foliage.—W. B.

Gardens and Gardening in the Isle of Wight.

Horticulturists and the public in general resident on the mainland, are wont to regard this Island as possessing exceptional natural advantages both in climate and environment for gardening. Not for a moment is it my intent to play the rôle of the pessimist in attempting to depreciate our Garden Isle of which, as a native, I am justly proud; nor to deny that it deserves its great reputation as a health resort from its bracing pure air wafted to the heart of the famed Undercliff and other localities, from the English Channel. But any gardener labouring here concurrently with myself for over thirty years, would scarcely claim for it perfection from a horticultural point of view. We experience here a very fluctuating temperature, which is extremely trying to all vegetative life. Brief spells of brilliant sunshine at this season are quickly followed by extreme cold and frost, the former unduly forcing, the latter resulting in retarding and injuring the immature growth.

Then some gardens are much exposed to devastating gales like that raging on September 10 last, and others subsequently doing much damage by "burning up" foliage of hardy trees and shrubs, such as the Ilex and Laurustinus, and playing sad havoc amongst fruit trees, flowers, and vegetable crops. Visitors are surprised to see Oaks and Elms of stunted appearance all turned to the northward, as it were, with bowed heads. My object in penning this defence of Island gardeners, is to secure a complete elimination from the minds of others, that gardening here is a sinecure, or that we enjoy immunity from opposing forces such as prevail in other parts of this country. Success is not to be achieved without experience and insistent, dogged determination, with strenuous application to all cultural detail and management.

So much has been written on the vagaries of the weather of the last two seasons that it seems a labour of supererogation to write more, and we have come to regard them along with work-houses and passive resistance as evils that must be borne. One would have to be of a Mark Tapleyan temperament to enjoy garden visitation when rain comes dripping down on all animate or inanimate things, as it fell on the Ghost Walk at Chesney Wold, immortalised by Dickens, during my holiday from Sandown, I.W.

BROADLANDS.

Broadlands is unlike those gardens in proximity to towns, which are so often restricted in size. It is a place typical of its name. The worthy head gardener, Mr. T. Rood, is an old friend of long standing, and our meeting after a lapse of time was pregnant with pleasant reminiscences. The late W. G. Rendell, Esq., was doubtless a lover of his garden, and displayed good taste in laying-out, and many improvements were carried out by my old friend under his supervision. What was originally a meadow has been converted into additional tennis court and pleasure grounds. Sloping shrubberies form the boundaries, and inside this a wide border of hardy herbaceous plants, edged with a grass verge, contiguous to which is a smooth gravel path, the whole forming a semicircle, and the effect will be both pleasing and imposing as the season advances. I noted amongst the shrubs the newer forms of *Buddleia Colvillei* and *variabilis*, and some grand specimens of *Choisya ternata* thick with buds.

I think the kitchen gardens here are the prettiest I have seen. A centre path, 12ft wide, extends the whole length, into which the others converge, the whole being as smooth as a drawing-room floor, and not a weed to be seen. Fruit trees are planted on either side, ample space being reserved for a wide fringe of flowering plants. The Germanica types of Iris and also *Kämpferi* grow vigorously. The fruit trees produce fine crops; and Pears, of which there are fine pyramids, are well to the fore, Pitmaston Duchess yielding bushels from one tree alone. The plant houses contain a miscellaneous collection of Callas, *Spiræas*, *Cinerarias*, and *Azaleas*, together with nice pieces of *Cœlogyne*, ferns, and *Asparagus Sprengeri*. In a cool house are two robust *Maréchal Niel* Roses, one running the length of a house (30ft), and which will be glorious later on. A conservatory has been added to the picturesque mansion, with which it harmonises well. Neatness and good cultivation are discernible to all points, the place being suggestive of comfort and affluence.

LOS ALTOS.

Los Altos is in close vicinity to Broadlands, and this is the residence of G. W. Drabble, Esq. The gardens are among the best-kept on the Island. A cordial welcome was given to us by Mr. Niblett, who is practically head here, and Mr. Perkins, the genial bailiff, who supervises the whole of the estate. Gardening is carried out with zeal and conspicuous success. The mansion stands on a commanding position, looking most dignified when viewed from points of vantage. There are several plantations of trees and shrubs for affording shelter, and also for privacy from public roads, and a charming private drive to the station has recently been made and judiciously planted up. The tennis courts and lawns and pleasure grounds are tastefully laid-out

and admirably kept, but cleanliness prevailing in every department. There is a well-stocked fruit garden also, with borders of flowers for all seasons, including Roses, and separate plots of hardy plants grown for decorative cutting purposes. Most of the vegetables are grown at the farm. The vineries, stoves, and greenhouse are well-built structures, the former being used for forcing Beans and Potatoes, and Strawberries. The alternative system of Potato culture in dark sheds, caves, or cellars, was discussed, and Mr. Niblett intimated his intention of testing it shortly, in order to leave houses clear for other subjects. The stove contains Crotons, *Adiantum Farleyense*, *Dracenas*, and *Panax*. Orchids are represented by *Cypripedium Boxalli*, *Cymbidium Lowianum*, and an old favourite of mine, *Phaius grandifolius*. Forced bulbs are largely grown, including some of the best forms of *Narcissus*, such as *Mde. de Graaff*. A spacious conservatory is attached to the mansion, and is bright with Callas, also *Cineraria cruenta* (well grown), bulbs, and *Calanthes*. A large Palm house forms another feature, and contains Cycads and Musas, all of good size. Both internally and externally



Carnation, Mrs. T. W. Lawson.

this house is quite in character with the architecture of the mansion, and is one of the pronounced features of the establishment, which, throughout, reflects infinite credit on owner and gardener alike.

LANDGUARD MANOR.

Landguard Manor, the residence of A. H. H. Atherley, Esq., is situate near Shanklin, and is quite the best garden in the district. Mr. Banks, who acts in the dual capacity of gardener and bailiff, gave myself and those who accompanied me a courteous reception. This gentleman, a true stalwart son of "Auld Reekie," has long been a successful exhibitor at local shows, and therefore, in addition to being a "chieftain among us takin' notes," he can also frequently make notes of another kind—can write an essay. The cultivation of hardy fruits here is extensive. Supplementing old orchards, new ones have been

formed at intervals, and all look clean and vigorous, and yield successional supplies almost the whole year through. Strawberries are also in abundance; rows nearly a hundred yards long are succeeding in a field, where also are lines of fruit trees and numerous rows of the Brassicæ. Here the plough can be requisitioned as a more expeditious implement than the spade. I was humorously informed that Celery was earthed up by the former.

Grapes in quantity and in variety are well cultivated and exhibited. In the plant houses I noted many old favourites like *Diosma*, the older *Acacias*, and a fine batch of *Hippeastrum* (*Amaryllis*) *aulica*, the progenitor of existing race, and anent which an interesting article appeared in a contemporary journal recently. I have flowered a specimen of this (still worthy of a place) with twenty-one scapes. It can be retarded for summer shows by placing the pots in a late Peach house. Carnations and Cyclamens are grown in quantity. The Peach house is a roomy structure, and the trees have grown too strong, but the shoots are thick with bloom, and if a heavy crop can be secured this would doubtless check this. The grounds are very beautiful, and the place abounds in trees, some of great size, and ornamental flowering evergreen trees and shrubs imparted warm and life-like aspect even at this season.

After complimenting Mr. Banks on his charge, we returned to Sandown, where I also had the privilege of inspecting Mr. Frampton's nursery. The splendid lot of forced bulbs and shrubs claimed our admiration. This gentleman's reminiscences of gardens and gardeners forty years ago were most entertaining. Untrammelled for the nonce from official cares and duties, days like these lend a zest to gardening, in the interchange of ideas on its many phases, and on the relative merits of varieties and many general subjects, as correct nomenclature, a keen appreciation of each other's abilities and labours is developed, and we are ourselves greatly improved.—SOUTHERN GARDENER.

Liverpool Botanic Garden.

The principal feature in this garden at present is the magnificent display of *Hippeastrums*. Upwards of 400 are already grouped for effect on the front stage in the large Palm house, and several of the bulbs carrying four and five umbels, with five and six flowers on each umbel. The perianths are perfect in form, size, and substance, and in varied colours, from the richest crimson to those almost pure white, and beautifully fimbriated forms stand out conspicuously at intervals in the group. Several of the perianths measure 9in across, and are acknowledged by experts in the neighbourhood to be an improvement on those of last year for vigour and floriferousness.

Mr. Guttridge has also succeeded in raising a double variety, the stamens having been converted into petals. This gorgeous display is attracting hundreds of Liverpool citizens daily, and never were these gardens so popular as at present; gardeners in the outlying suburbs (who, until the last few years, practically ignored this floral paradise) now pay several visits during the year to see the principal subjects, according to their season of flowering. This display of *Hippeastrums* will be continued for several weeks, as upwards of 2,000 flowering bulbs are grown and brought in in successive batches. Mr. Guttridge is a persevering hybridist, and each year numerous crosses are made, not with *Hippeastrums* alone, but orchids and other subjects also.

The principal orchids in flower at present include *Laelio-cattleya* x. *Highburyense*, *Odontoglossum crispum*, *Laelia* *Jong-beana* *Phalenopsis* *Stewartiana*, *Odont.* *triumphans*, and *Dendrobiums* in variety. These gardens also supply botanical specimens throughout the session to the Central Technical School, Liverpool; Birkenhead Technical School, and other schools of science, which are highly appreciated by the teachers and students alike, giving, as they do, a distinct advantage to students of botany of studying the science by the examination of living specimens, even in the depth of winter.—J. S.

Sefton Park Conservatory.

In this Liverpool winter-garden, groups of *Rhododendrons* (*Azaleas*), *Lily of the Valley*, and other suitable forcing subjects, are arranged with effect opposite each entrance, and prove a pleasing and bright contrast to the massive Palms and tree ferns which occupy the centre of this magnificent structure. But the Knight-star-lily (*Hippeastrum* or *Amaryllis*) appears to attract the attention of the majority of the crowds, which daily parade this palace. They are arranged in one large group, consisting of about 150. *Spiræas* form a capital groundwork, and suitable setting for the *Hippeastrums*, the foliage supplying ample greenery to hide the pots, and the white panicles providing the necessary material for harmonising with the Lilies. Mr. White, the foreman in charge, keeps up a continual display until May is well advanced. He has a large stock to draw from, which he has raised and cultivated from seedlings, many of them being perfect in form, colour, and substance.—J. S.



Notes on Apples.

If "S. P., Wilts," will let me know where he finds "Notes on Apples," misleading I will do my best to make the matter quite plain to him. My "notes," however, cannot properly be considered misleading, as the faults of each variety, so far as I know them, were held up to view just as plainly as their good qualities. Such Apples as Bramley's and Lane's Prince Albert which "S. P., Wilts," mentioned, have had full praises from almost everyone; and nearly everybody who knows anything at all about fruit culture is well aware of their merit, and I can assure "S. P." that had the "notes" been continued those varieties would not have been mentioned.—PROVINCIAL.

Gardeners and Their Duties.

I regretted that absence from Exeter prevented me hearing Mr. Slade's paper on this subject at a recent gardeners' meeting there. The matter calls for more attention from gardeners, and it is refreshing to find a man advancing such needful notes of advice and warning. I wish that more open dealing were common. Quite recently I gave a demonstration in a well-kept fruit garden in the absence of the gardener; and, upon inquiry, his employer said that his gardener would not come to the demonstration. When I asked for a spade the employer told me and the class that the gardener had locked up all the tools and gone away. Patient employer! I have given three weekly demonstrations in that village, but I have yet to be introduced to that man. He, not being a junior, does not think with Mr. Slade that "every junior should strive to make himself efficient, and always endeavour to learn something more." Nor is any desire present to "anticipate" the wishes of an employer. That man did not keep the gardeners from coming from other gardens, but in some places prejudice like that might have done so. I was deeply grieved at such poverty of thought, and I still am. This sound progressive note of Mr. Slade has done not only others, but myself good.—X.

Potatoes and the Potato Boom.

The candour of Mr. T. A. Weston, page 278, is delightful. I admire it almost as much as I do his inability to accurately gauge his own capacity for pugnacity. Matters connected with the growing and classification of Potatoes are certainly becoming complicated, but still I am inclined to think that if diligent search were made, another individual might be found in this country who knows almost as much about the noble tuber as "T. A. W.," but I am sure it would be impossible to discover any sane man ready to propound his ideas in a more arrogant and conceited manner than the writer of the article on pages 278-9. But there is perhaps some excuse even for "T. A. W.," for I noticed some time ago that he had been "holding forth" on his favourite topic before an audience in a southern seaport town. After that mighty effort this colossus of the Potato world perhaps considers it necessary to put on a little "side."

In order to confine this reply to a vindication of my own remarks, it seems necessary to tell "T. A. W." that I cannot be responsible for the remarks of all the lecturers in the Midlands, but I have no doubt that any of them are quite capable of defending themselves against a multitude of "T. A. W.'s." My critic evidently fancies he is far above ordinary mortals in regard to his knowledge of wirepulling, but I have generally found that those who know the most about these things say the least. It is all a matter of £ s. d., says "T. A. W." Of course it is, money is the foundation of all business enterprise, and, as a rule, it is the great incentive which acts as a lever to progress in a thousand and one directions. It is not in regard to Potatoes alone that raisers of improved varieties endeavour to make money by their efforts. The same principle applies to Chrysanthemums, Roses, orchids, &c. One has to purchase the newcomers and test them beside older ones to see if the supposed improvement is real, and it is not always that the high-priced ones prove the best. In enterprise of any description there is always some risk, but the risk has to be taken if anything is to be won. All these things are well known, and cultivators exercise their judgment in regard to what they purchase—and

pretty shrewd judges many are—and therefore I again repeat that “no manipulation of the markets will induce cultivators to pay fabulous sums for a new thing unless they think there is a fair prospect of getting something out of the bargain.”

The vast sums paid for Eldorado have been given almost entirely by men in the trade, who expect to reap some financial benefit for their bargain, and if the few who hold the stocks can get such prices, who can blame them? If “T. A. W.” held stocks he would, I trow, exact his price like the rest of the dealers.

In regard to Northern Star, “T. A. W.” is evidently piqued because he has failed to grow it satisfactorily, but he need not decry the variety on that account, or show the pettiness of a small mind because others have succeeded where he has failed. Few, if any, varieties are equally satisfactory on all classes of soils, and in every district, but the majority of those who have grown Northern Star are well satisfied with original outlay in obtaining a stock. If it could have been purchased at a cheaper rate most of us would have been better pleased, and those who thought Evergood as good should have put their money on that.

Under garden culture I have seen a pound of Northern Star produce 143lb, and under field culture I have seen the same variety produce crops immensely superior to British Queen, and Up-to-Date growing beside it. In fact, I have seen enough to satisfy me that the “Star” is a variety everybody should grow where the soil suits it.

In the third paragraph of “T. A. W.’s” notes he wastes a good deal of energy in beating the air, for anyone who has read my remarks on disease-resisters must see that they vary but little from “T. A. W.’s.” It is not a question of paying a high price for a variety which will always be a disease-resister; the point is, we have so few that can lay any claim to being such, but now that a strain has been raised that brings us appreciably nearer the goal, we may look forward in a few years to having numbers of such varieties, and therefore normal prices will prevail, as new ones of the right type will be continually brought forward to take the place of older ones which show signs of deterioration.

“T. A. W.” seems to think he has quite nailed me to the fence in regard to Sutton’s Discovery, because I have quoted it as a kidney. Well, I have two distinct samples which have been grown from seed obtained direct from the raiser. I have also Sutton’s special pamphlet on that variety, and yet I still maintain that Discovery is quite as much a kidney as a round.

“T. A. W.” again shows his capacity for distinctions when he takes me to task for including Sir J. Llewelyn among the second earlies. That is simply a matter of comparison. It is a second early when compared with May Queen or Webbs’ Express, but when the comparison is with Duke of York or Puritan, Sir J. Llewelyn might be termed an early, but neither of the three are among the first flight of earlies. In regard to May Queen, I care not whether “T. A. W.” dubs it a frame variety or a monstrosity, I know it is a grand one to grow for the earliest crop in the open air, and if he (or anybody else) can tell me of a better one, just as early, I shall welcome the information.

I have already dealt with a few suggestions of “T. A. W.’s,” which show the inherent modesty of the man, but there are several others which are too great to pass over. Here is one:—If I really have King Edward VII. in my possession, “T. A. W.” wants to know “why I made no mention of its having pink flushes on some parts of its surface.” Ah! why? Simply because when I write about a subject I do so in my own way, because I have no “T. A. W.” at my elbow to dictate what I should or should not write; and considering this characteristic of the variety has been described in almost every horticultural paper published in this country during the last twelve months, readers will undoubtedly appreciate the omission. Such a veritable *multum in parvo* on the characteristics of Potatoes as “T. A. W.” should be of immense service to the classification committee of the National Potato Society, and I commend him to their notice.

No, my instructor, neither is it news for me to learn that records exist for thirty and forty-seven tons per acre having been produced upwards of a century ago, and we want again to get varieties capable of producing something approaching those yields, that is one reason why I believe in Northern Star. Once again my genial critic seems to think it necessary to tell me how little I know about Potatoes, because I admitted pulling up the tops when the disease first appears. I have no need to go back a hundred years (in fact, my memory won’t carry me so far) to find justification for the practice. I have had an excellent illustration this year, and have in past times secured many a crop by the same process. I would much rather no disease had appeared, but the practice is one of doing the best under the circumstances. To crown his edifice of criticism and advice, “T. A. W.” gives me a rough outline of the methods by which tubers are formed, and the way in which the disease is spread. How kind of him to throw me crumbs of knowledge about matters which I have studied closely since my “salad days,”

and about which I am kept constantly informed in regard to modern progress. When I really do want a lesson on points connected with fungoid diseases, I shall certainly not go to “T. A. W.” for it. Let me not, however, attempt to repress the youthful ardour of this new Goliath of the Potato world. I will, instead, tell him clearly that if he really does know anything about Potatoes, I, and all other readers of the *Journal of Horticulture*, will be pleased to drink from his fountain of knowledge, but he will never gain a reputation for knowledge by advancing his ideas in a bellicose manner born of arrogant conceit. Such a course will rather tend to make “T. A. W.” the laughingstock of all sensible and fair-minded men.—
HORTICULTURAL INSTRUCTOR.

Gardeners and Benefit Societies.

Gardeners seldom or never pay into one of the many of these societies throughout the land. (?) They do not require to depend on such means of succour perhaps as much as other trades. Their peculiar place in the service of the household prevents the suspension of pay with that of labour at the time of sickness; yet this may not always be so, and probably it would be a better and wiser plan for the gardener who depends on such a comparatively small income that he should be attached to a benefit society. Now, as gardeners’ societies are at this present moment legion, there is no reason why they should not have something of this nature attached to each of them.

If the service, in the first instance, discourages the ordinary system of benefit, it by no means does that in the case of old age. No one appears to want the old and venerable hoary-headed gardener, however superlative his qualities, or however skilful his cunning in the secrets of his profession. He is thrown aside, as we have all seen, often in the height of his strength and vigour. This, then, is the man who needs and certainly deserves help if he has not got anything to his credit in the bank. Well, if he has he must have severely denied himself, for few can be much better off than Goldsmith’s parson, who lived on £40 a year. Perhaps there are not many gardeners so very low paid, but times have changed since Goldsmith wrote his “Deserted Village,” and gardeners and parsons certainly have higher wages, but they also have higher demands.

And now when the horticultural spirit is at this moment so highly imbued with devotion for greater cohesion and unity, is it not meet that some of that zeal should find a happy response in something more tangible and befitting the exuberance of pent up energy, than yet compromised in gardeners’ associations? Gardeners’ pensions are certainly day by day becoming less the rule in even the service of our best aristocratic families. Indeed, before the veteran reaches sixty his presence in the service to which he has devoted the best part of his life is scarcely reciprocated with that geniality and sunshine of manner that always conspires to make master and servant more united in the great purpose for which both exist. Why should he not, therefore, agitate for some means whereon he can look forward to a day of independence—a day which brings comfort and not sorrow and painful thoughts of charity to embitter the last years of a well-spent life?

Associations for the promotion and development of horticulture are good, but surely it is vastly better to make due provision first for the welfare of the humane side of the question. To myself this has been always a matter of astonishment, and I often ask myself, Is the gardener a blind, improvident creature who spurns the necessary precautions to ensure a comfortable life in old age? No, that is not it. I rather think the negligence is the outcome of two very important causes. The gardener, on account of his close association with Nature, absorbs a good deal of fatalism into his being. With this and a strong dependence upon the permanency of an appointment, he shuts out the inevitable vista of the future from his view, and rolls on with the years oblivious of consequences, till at last he finds himself, alas! an old and penniless man, insufficiently fitted to combat with the circumstances.

What is wanted, and that badly, is a means whereby this unfortunate climax—call it crisis if you prefer—can be successfully averted, and how it is to be accomplished depends entirely upon the measure of independence that stamps the character of the gardening profession. If we much longer persist in denouncing any need for old age gardeners’ pensions, we necessarily forfeit all right to be considered a provident profession, and must be termed creatures of circumstances. We have no right to expect anything of a miraculous nature to meet us at the end of our labour journey. The probability is that the greater number reach that goal just about as well equipped for the exigencies of the position as they were when beginning their career—much less, indeed, for then, though wanting wealth, the invaluable assets health and strength were there.—
UNITAS.

[What of the United Horticultural Benefit and Provident Society, whose address is 9, Martindale Road, Balham, S.W.?—Ed.]

Preoccipity of Tuberation in Northern Star Potato.

I am sending you two plants and one cutting of Northern Star Potato. The longest one was taken as a cutting about a month ago. You will see now that it has a fair-sized tuber on one of the roots. The other two were taken three weeks ago: one is well rooted and has two tubers on it, the other is not rooted, but has a small tuber forming at each joint up the stem where the leaves were cut off. I have never seen Potatoes crop in this way before, and I think it quite justifies the reputation Mr. Findlay gives of the productivity of this Potato. I am sending you these thinking perhaps you would like to take a photo to insert in the next issue of "our Journal."—D. PAXTON, The Gardens, Hitcham Grange, Taplow, Bucks.

[Unfortunately, owing to their being packed in dry cotton wool, and having been delayed owing to the holidays, a photograph of the cuttings would not have been successful; but we thank our contributor for his letter.—ED.]

The National Gardeners' Association.

As a constant reader of your paper I have watched with interest for all news appertaining to the proposed Gardeners' Association. As a young gardener I believe that such an association would be of immense benefit to our profession, and among my gardening acquaintances the proposal seems to meet with considerable favour. The questions of wages and working hours, together with the qualifications necessary for registration, are such as will require the careful consideration of any committee, but first we must support the Provisional Committee in their endeavours to bring about a successful meeting on the second day of the Temple Show. As the young gardeners of the present day are the ones most likely to benefit first by the formation of an association, I think we ought to make the matter as widely known among our professional friends as possible. It is to be hoped that many donations will find their way to the secretary (Provisional Committee) to help defray the cost of distributing the pamphlets now eagerly awaited for.—GOWRIE. [The secretary's address is Descanso House, Kew Road, Kew.—ED.]

Horticultural Instruction in Scotland.

In reply to a communication from us, Mr. William Williamson, Logie Green Nursery, Edinburgh, and late horticultural instructor under the East of Scotland Agricultural College, says:—"I should have been pleased to furnish you with a report of my work in connection with the East of Scotland College of Agriculture had it proved a success. In the first place the appointment was not a permanent one, although the report that got into the papers inferred as much. I was engaged to lecture only during the winter and spring months at a certain sum per lecture, as the funds were too low to pay a permanent man, although the directors are now moving in that direction, I understand. My lecturing was chiefly confined to the coal-mining villages with a view to interest the migratory miner in the cultivation of his garden, and induce him to remain in the village instead of roaming about from one district to another.

"The lectures were arranged specially for cottagers in series of four at each village, but, in general, were poorly attended. In a village of two to three hundred about a score would cultivate their gardens, and the excuse given for neglect was they had no tenure of their houses, two weeks being the notice to quit, and if they cropped the ground others frequently reaped the benefit. The only well-attended meetings I had were among the glens in Perthshire, where the farm servants and others seemed particularly anxious to gain information about the cultivation and cropping of their gardens, and it is wonderful what they could accomplish at an elevation of 1,200ft above sea level. They were very anxious to be able to grow fruit, especially Apples, certain varieties of which I recommended on the Paradise stock to succeed in an average season. Small fruit, vegetables, and certain flowers do exceedingly well along the base of the hills facing the western sun, the Rose in particular producing its finest colour, while the damping-off of blooms is seldom experienced. It was my intention—had I not been confined to a syllabus—to advocate fruit culture in the fertile districts as a profitable industry even in Scotland.

"I am to give a paper on rural economy at the monthly meeting of the Scottish Horticultural Association on April 5, and shall be pleased to send you an extract from it for insertion in the *Journal*. There is a general outcry to get the people again to the land, but as far as I have read or heard there has been no feasible scheme proposed. The people will not go to agriculture pure and simple, and then, fruit culture alone gives no permanent employment, hence the object of the paper is ostensibly to demonstrate how the proper value of the soil may be utilised, and the people employed in its realisation. I am sorry I have nothing of interest to communicate in connection with my short term of lecturing, which I cannot now take up again."

The New Soil Science and Its Results.*

I think I am perfectly safe in claiming that the New Soil Science was created by Professor A. N. Macalpine and myself. And let me be perfectly frank with you. We were *compelled* to depart from the old and corrupt views recorded so unerringly in every book published at that time on soil science, views which, unfortunately, obtain in too many quarters even now. I say we were compelled to seek after truth, because we had demonstrated to ourselves that the science, as taught, was wrong.

Now, what was this new science? I may describe it laconically by saying that a sterile soil must be an infertile soil, because without germ occupation—without the presence of all those groups of micro-organisms which I have classified as advantageous—no soil can be fertile.

Farmers have been likened unto brewers or distillers, and the illustration is to me a happy one, as we shall see. The brewer uses as his raw material sugar and other organic extractive matter, hard water, and mineral matter from barley, &c., yeast; and what are the products? Beer. The farmer uses as his raw material muck, soil constituents and artificial manures, and advantageous soil organisms. The results are his crops. The brewer has to beat his fermenting tuns to get rid of carbonic acid; the farmer has to drain his land for the same purpose.

Now, here is one of the smaller points in our new subject, viz., the function of a field drain. You hear it almost invariably stated that the function is simply and solely to carry off water; but I have just told you that those living bodies in soils manufacture enormous quantities of carbonic acid, which is a heavy gas, and must escape *downwards*, so that, unless you have good drainage to carry off this product, fertility would be impossible. That is to say, that supposing you had a good soil, with no more water in it than was required for your crop, and therefore had no necessity for a water conduit, unless you had a drain to carry off the poisonous gas manufactured by your soil organisms, your organisms, and your crops, and every other living thing would perish.

This leads us to compare again the old and the new science. It is everywhere stated that carbonic acid brought down by rains is the great soil and rock solvent! Is it? The atmosphere in rural districts contains only 0.02 per cent. of carbonic acid, and if you could by any possibility bring it *all* down, in the state of dilution in which it must exist, its action must be practically *nil*. Now, you will naturally ask, What evidence have we in support of that view? Gentlemen, I have just been telling you that enormous quantities of that so-called soil solvent are being constantly manufactured in the soil: in fact, the *soil atmosphere* contains as much as from 30 to 60 per cent. of it, so that if 0.02 per cent. could by any possibility do what it is credited with in books, we should be standing on igneous peaks within thirteen months, three hours, one minute, and twenty-three seconds.

Now, as we are considering soils and drains, our attention is naturally directed to another feature which is depicted in books with extraordinary detail. I refer to *capillarity*, and on this subject the new science and the old statements are in sharp conflict. It is a good many years ago since I discussed the subject with Professor Wallace, of Edinburgh, who endeavoured to prove to you that the panacea for all the ills to which agriculturists were heir was the imposition of one shilling per bushel on imported wheat. Gentlemen, within a few months thereafter wheat rose 10s. per quarter if I mistake not, and I fail to perceive even yet what effect that has had upon agricultural depression. However, that is by the way. Professor Wallace and the Board of Agriculture Inspector of Agricultural Schools discussed this subject of capillarity *with* me, but not with any credit *to* me. Those awful books to which, unfortunately, I must refer, picture with painful precision those capillary pipes, which draw up water from the subsoil by capillarity, and bring with it—from the subsoil—nourishing salts, and goodness knows what else. In a few words I will show you how absolutely erroneous those views are. Even if I grant that a soil does consist of a mass of something of the nature of pipes, those pipes have attached them at their lower end a *drain* which runs off whatever water (and carbonic acid) there is to run; that drain must and does act as an exhaust pump would; and I ask you, is it sensible, is it science, to say that water will rise, *or can rise*, under any such conditions?

Take another view of it. All the books further say that subsoils in general contain ferrous salts, which are poisonous. Gentlemen, those great savants overlooked the great factor, the diffusibility of salts, and they forgot that this diffusible poison could not be kept out of the capillary water or the pipes, and so they forgot that if there was a vestige of truth in their well-aired science, every crop would be *poisoned*.

While it must, of course, be admitted that there is an amount of surface attraction, or tension, among soil particles, there can be no shadow of truth in the doctrine of the pipes;

* Paper read before the Renfrewshire Agricultural Society at Paisley by Mr. John Hunter, F.R.S., F.C.S., Edinburgh.

in fact, all the great experiments which are quoted in evidence of this great physical function are simply and solely proof of evaporation and condensation, and the classic experiments of Krocker show nothing else, although they are represented as proving the extent of capillarity in soils over a period of about two years, so far as I remember. It is said that hoeing breaks the end of the small pipes, makes the calibre larger at the top, and thus shows the rate of capillarity, and consequently keeps the surface longer moist. It does nothing of the kind. It simply breaks the continuity of the soil mass, and thus diminishes the conduction of heat from the surface, with the result that *evaporation* is slower.

Just a few words in regard to tillage. The old views are that ridging up for winter causes disintegration of the soil particles, and liberation of plant essentials by frost. What of the ridging up in tropical countries? It is too absurd a subject to follow up here, and therefore I will clench it with the new views, which go to show that the liberation of plant essentials in any ordinary soil cannot be accomplished without life, for if we sterilise a soil, and attempt to grow plants therein, we must fail absolutely, unless we adopt water-culture conditions. I

lines of exterminating *reducing* bodies which are not the friend of the farmer.

Now, this leads me to say just a few more words about the book-science of soils. There we have again pictured most extraordinary double decompositions going on in soils, resulting in the liberation from their locked-up condition of various so-called essentials. Take lime as an example. Lime is said to liberate potash, ammonia, &c., from their silicates or other compounds—the lime being fixed *pro tempore*, but to be itself afterwards liberated by that extraordinary trace of carbonic acid contained in the air. Caustic soda would, of course, also be liberated, so that, according to that so-called science, we have in soils—as the result of adding lime—a blend of caustic potash, caustic soda, and other death-dealing bodies. Such reactions are absolutely impossible of accomplishment in soils or anywhere else where identical conditions obtain, and it is most lamentable to think that to the present day those doctrines are being taught in universities and agricultural colleges in this country.

Another function of lime which still holds its place in books and lecture notes, notwithstanding my criticisms, in universities and out of them, is that lime is an oxidiser of organic matter.



Eucharis amazonica at Carnatic Hall, Liverpool.

should, perhaps, observe here that repeated tillage of soils—of *fertile* soils—increases enormously the amount of soluble constituents, because of the shifting of our industrious organisms *into pastures new*. That also is a fragment of new soil science!

But I may bring this germ theory quicker home to the men of Renfrewshire by asking them a question. Many of you are interested in dairy work. Can you get your curd, can you ripen your cheese, can you get those—to some—attractive moulds without the advantageous micro-bodies? or can you keep your milk sweet unless you keep out the *disadvantageous* bodies which are the terror of up-to-date dairy farmers? No! And so it is with all classes of agriculturists, for the real and the only true science—which necessarily embraces the science of manuring—consists of encouraging and feeding the advantageous groups of soil organisms, while we study to keep in check, or to annihilate, those which are disadvantageous. And why? Because those advantageous groups are the workers which, by night and by day, are converting *insoluble* and *unassimilable* bodies into bodies which are soluble and diffusible; and, if the conditions which favour those advantageous groups are maintained, we have then the conditions which are on the

Lime in soils can no more oxidise their organic matter, or anything else, than it can oxidise the gold wheels of the fiery chariot of old. It is but right I should say there is one writer who in recent years has been approaching the truth in his books, and that is Dr. Fream, but he is the only one, and I don't exclude continental savants. Again, books and lectures tell us that magnesia in soils is a danger, because it is so *caustic*—especially as compared with lime—that it destroys the roots of plants. Gentlemen, was there ever anything more unscientific or insane than that? It does show most absolute ignorance on the part of the expounders of those views in more ways than one. It shows ignorance of the laws of chemical combination, and it exhibits an entire absence of knowledge of the physical properties of the bodies mentioned. It shows also an entire absence of knowledge of the new and true science of agriculture, which teaches us in what combination magnesia should be used, because of its great importance in nitrification, its importance when intelligently applied *in the nourishment* of advantageous organisms, and its importance in all seeds where reproduction is the intention.

(To be continued.)



Figs under Glass.

EARLY FORCED TREES IN POTS.

Increase the ventilation when the fruit shows signs of ripening, and expose to the sun as much as possible. The drier atmosphere encourages the Fig trees' worst enemy, red spider, and also brown scale, therefore no effort should be spared to have the foliage clean up to ripening time. Supplies of water are needed through all stages at the roots, yet less when the fruit is ripening than during its swelling. Increase the ventilation at 70deg, affording air constantly during its period of ripening. Day temperature 80deg to 85deg from sun heat, and night temperature 60deg to 65deg.

SUCCESSION HOUSES.—Trees in inside borders will need abundant supplies of water, and those in narrow borders and carrying heavy crops of fruit require liquid manure, with rich surface dressings. Attend frequently to tying-in, thinning, and stopping the shoots at about the fifth leaf of such as are required to form spurs, and avoid overcrowding the growths. Maintain a night temperature of 60deg to 65deg after the leaves have become full-sized, and 70deg by day, allowing a rise of 80deg or 85deg for sun heat, ventilating from 70deg, closing at 80deg, so as to rise to 85deg or 90 deg afterwards.

LATE HOUSES.—Syringe the trees on fine days sufficiently early to allow of their becoming dry before night. Ventilate freely in the early part of the day; strive to secure solidified growths, and close early in the afternoon, with a fair amount of atmospheric moisture where there is means of excluding frost, but in unheated houses afford moderate moisture only.—**GROWER.**

Notes on Pines.

SUCKERS OR PLANTS STARTED EARLY IN MARCH.

These will not require attention. The pots will be full of roots, but before the plants are root-bound shift them into 10, 11, or 12in pots, watering them a day or two previously, so as to have the soil moderately moist when they are potted. Take advantage of the removal of the plants to examine the beds, replenishing them if need be by the addition of fresh tan, mixing it with the old to a depth that will afford the temperature required, namely, 95deg, at the base of the pots until the roots reach the sides, when 90deg is more suitable. Keep the air about such plants well charged with moisture during the time the house is closed, employing no more fire heat than absolutely necessary to maintain a temperature of 70deg to 75deg on mild nights, 5deg to 10deg less on cold nights. Ventilate slightly at 80deg, liberally at 90deg, closing with sun heat at 85deg, at which time syringe the plants. This treatment will be suitable for fruiting plants, except such as are in bloom, which should not be syringed. Examine the plants twice a week, and water those that require it.

PLANTS STARTED INTO FRUIT EARLY IN THE YEAR.

These are fast approaching the flowering stage, and will be benefited by an occasional sprinkling at the time the house is closed; but when in flower they must not be so treated. The foliage being as yet tender, it will be desirable in the case of houses with large panes of glass to afford a slight shading for an hour or two in the hottest part of the day until the foliage becomes inured to the sun's influence. When the flowering is over the fruit will advance rapidly if the roots are in good condition, and plentiful supplies of weak liquid manure will be requisite. Attend to ventilating early in the morning, commencing when the temperature is at 80deg, and closing at 85deg with sun heat. Keep the atmosphere moist when the house is closed, and maintain the bottom heat steady at 80deg to 90deg, night temperature 70deg, and 75deg by day artificially. As the suckers appear, remove all but one to each plant.—**PRACTICE.**

Failure of Young Peaches to Set Fruits.

It may not be a common experience to find that young trees of Peaches and Nectarines grown under glass fail to set fruits, whether forced or brought on in a natural manner. I have planted many young trees in glass structures started at varying periods, but so uniform has their failure become in early fruit bearing that I do not now expect them to do so. Some may be inclined to say that undue vigour of branch is a dominating cause, which no doubt is true, but when this has been corrected by replanting or root-pruning, the failure continues in spite of these well-worn remedies, what then? Absence of lime, too,

may easily be made another assumed reason for failure, but this again is never omitted in planting Peaches, or, indeed, any stone fruits. Sometimes outdoors there is greater precocity of fruit bearing from young specimens, but even here there is no binding rule observed.

These observations have been so often made, indeed become part of the yearly routine, that in paying visits to grounds or other gardens wherein Peaches are represented in varying ages, I very naturally observe the habits of trees in this particular phase. I have found that in some instances the same failures occur, in others they are unknown. Some may even, if they so choose, obtain a crop from trees imported from some distant nursery where necessarily there can be no soil carried with the fibrous roots, and these dried more or less in packing and transit. Home-grown trees prepared on the walls outdoors just as signally fail as do the purchased trees. The latter we should not encourage to fruit, willing though they might be, for the fruits in most cases would be small, and consequently have no value justifying their retention. Purchased maiden trees, however, prepared at home say two or three years from the bud, when they have made good healthy heads and root balls, ought, when carefully removed to stations prepared under glass, to give a small crop of fair-sized fruits. The matter remains a mystery why this should be so regular and so oft experienced. Immaturity of wood cannot be associated with the failing, because were this so, such healthy and full-grown buds which afterwards expand and give such good promise would not occur. It is not so marked this failure to fruit in other kinds of trees as with Peaches and Nectarines.—**S. W.**

The Cultivation of Vegetables.

(Continued from page 284.)

One of the most important vegetables is the Potato, and the best place to grow Potatoes is undoubtedly in the open field. The most suitable soil for producing floury and well-flavoured Potatoes is a good sandy loam. Potatoes, however, have to be grown in all kinds of soil, and the only way to be successful is to select varieties suitable to each particular district. I do not approve of using rich manure when planting Potatoes. What manure is required should be dug in in the autumn. Spent hotbed manure is quite strong enough, and an excellent dressing to use at planting time. A good plan when preparing the ground is to loosen the soil under where the spade has been. This has a lasting effect upon the crop of Potatoes, especially when we get a dry season, which was not the case last year. For field work, we double-plough the ground for Potatoes.

Our earliest crop we grow in frames heated with manure, followed by a second on a south border in the kitchen garden. The Potatoes come up much better and truer if they are laid out singly in boxes some time before planting. Quite a fortnight can be gained by inducing the sets to start before placing them in the hotbed, or even in the open border. The favourite for the earliest work is Ringleader, both for frames and outside. This variety is a fair cropper, quick to mature, and fit for the table as soon as it is large enough. May Queen is another excellent variety, and a heavy cropper. The same remarks apply to Ninetyfold, but it does not mature so quickly as Ringleader.

For the main crop I do not think anything is to be gained by too early planting. Any time from March to May will do, but I consider April to be the best month if the ground is in good condition; but good results may be had if they are planted as late as June. Potato ground should be kept free from weeds, and well stirred with the hoe. No crop benefits more from the frequent use of the hoe than Potatoes. Of the new varieties I have tried this year, Discovery is a splendid acquisition, a wonderful cropper, and almost free from disease, as is also Northern Star, an earlier variety. These are the two best I have tried for a long time. The Potato crop in the neighbourhood of Byfleet last year was about the worst on record. Many plots were not worth digging, and yet the two varieties I have mentioned have come through it all with hardly a sign of disease. This makes them especially valuable.

THE PEA (PISUM).

Another important crop is the Pea. Gardeners, as a rule, are very proud of a good crop of Peas, and I do not think that anything in the way of vegetables is more appreciated than a good dish of Peas well cooked and served up. I find it a good plan to set apart a plot of ground well in the open especially for Peas. This should be trenched and manured during the winter, and left as rough as possible until required for sowing. Then take out a trench 6in wide and 6in deep, and sow the seed thinly. No seeds closer together than an inch, and the larger and more vigorous the variety the farther apart the seed. It is a very common mistake to sow Peas too thickly.

A mistake often made is not staking the Peas soon enough. The sooner the sticks are in the better, after the Peas are up.

If once the plants get high enough to tumble over, they will never do so well afterwards. Being sown in trenches, they will require no earthing up before staking. Mulching is very beneficial to Peas. Old stable manure is good, affording a fine stimulant to the plant, as well as conserving the moisture in dry, hot weather. For our earliest supply, we sow in pots and grow on under glass. The seeds are sown in large 60-pots, and when well rooted are potted on up to the 16 size pot. They are kept in a cool house or pit, and as near the glass as possible. When grown in this way very good results are obtained. For this purpose I prefer Carter's Daisy and Sutton's Perfection, both splendid varieties for pot work or frame.

The next sowing should be on a south border or in some sheltered position facing south. I do not think anything is to be gained by autumn sowing. If the ground is in good condition, January is a good time to sow the first lot, and February will be soon enough to commence sowing the main crop. In order to keep up a good succession, I find it a good plan to sow again just as the previous sowing is peeping through the ground. If possible, we sow two varieties at the same time, one kind being ready a little before the other, and so helping to keep up a continuous supply.

For our last sowing we depend on Autocrat and that good old variety Ne Plus Ultra, both excellent varieties for late work. The Pea, being a moisture-loving plant, should be plentifully supplied with water in dry weather, no crop suffering more quickly when allowed to become exhausted from lack of water.

THE BEAN TRIBE.

Beans, Broad, Dwarf, and Runner, are very popular vegetables, and should be grown well in all gardens. The most useful of all, I should say, are the Dwarf French varieties. If the cultivator has the convenience, they may be had the whole year round, planting them in frames or pots in batches for succession, and outside for the earliest crop before the Runners come in. There have been many so-called improved varieties of Dwarf Beans brought out of late years, but I do not think any of them are better than, or even as good as, Canadian Wonder for outside work.

The new climbing French Bean is good, and worth growing, but there is no doubt that the most useful and reliable crop for the summer is the Scarlet Runner. These should have a good open position in well-trenched ground, not under trees, as is often the case. No other vegetable gives such a generous return if well looked after. They must on no account be allowed to become dry, or the pods will not set. In field culture for market, the plants are topped when about a foot high, and again afterwards; but the most profitable way to grow them in the garden is undoubtedly by placing sticks for them to climb. I never lose an opportunity if I can help it of pointing out what I consider to be a very great mistake made in the cooking of Beans, both Dwarf and Runners. I refer to the way in which they are snipped up into little bits. I know it is the fashion to do so, but that is about all the method has to recommend itself.

The Beans should be gathered when quite young, simply topped and tailed, and then be cooked whole. In this way the goodness of the Bean is retained, whereas by cutting them up into little shreds all the nourishment is boiled out and thrown away in the water. Why Beans are not cooked whole I cannot understand. They are much less trouble to prepare, and better in every way than when they are cut up into chaff. Of course, persons purchasing their Beans at a shop have an excuse for cutting them up, as they are, more often than not, tough and old, but persons who grow their own have not this excuse.

The Broad Bean is a useful vegetable, but the season is a short one, unless special care is taken with the later crops. They are liable to be infested with the black fly, and unless these are dislodged by some means they will soon make the plants useless. Beans like a good, rich soil, well dug and manured. We sow our first crop as early in the year as we can get the ground in good condition. Nothing is gained by planting in soil that is too wet. A good season for planting will show itself all through the year.

THE ONION CROP.

Onions are a crop that we cannot well do without, but to produce a good crop a lot of forethought in preparing the ground previous to sowing or planting is required. I was told when I came into this neighbourhood fifteen years ago that Onions could not be grown successfully—that the soil was too light and sandy. However, I have always been successful, and have never failed to raise a good crop. We all know that the great enemy of the Onion is the Onion fly. Now, we say that "prevention is better than cure." In this case "prevention is the only cure."

The fly must not be allowed to deposit its eggs on the plants. The eggs are laid just inside of one or two of the lower leaves, and as soon as hatched the maggots go straight to the root of the plant, and begin their deadly work. When the plants begin to flag and show that something is wrong,

it is too late to remedy the evil. The only way to be successful is to prevent the fly from laying its eggs on the plant. To do this the plants must be made distasteful to the fly. I find nothing better than dusting the plants over occasionally with soot on dewy mornings or when the plants are damp, so that the soot will adhere to them.

Spraying with quassia extract, half pint to a gallon of water, is also a good preventive. The bitter taste remains for a long time. The ground for the Onion bed should be deeply dug or trenched in the winter, leaving the surface as rough and uneven as possible. We put on a good dressing of soot, lime, and salt. This is allowed to remain on the ground until sowing time in March. It is then lightly forked in, the ground raked down fine, and well trodden or rolled until it is quite firm. In our light soil it cannot be too solid for this crop. In order to obtain very large bulbs, such as we see at our shows, the seeds must be sown as early in the year as possible in pans or pots under glass. When large enough to handle they should be pricked off into boxes, and hardened off for planting outside in April, or earlier if the weather is favourable.

CARROTS.

The Carrot is another vegetable which often gives a lot of trouble to grow successfully. They are subject to the attack of the Carrot fly. This pest works in the same manner as the Onion fly, and the same means of prevention should be adopted. The soil in this neighbourhood is a splendid one for Carrots, and a large quantity are grown for the London markets. The best and surest way to obtain a good crop of Carrots for winter use is to sow late in May, or even in June. By this time the Carrot fly will have deposited its eggs, so no danger is to be feared from that quarter. The roots, being later, are more tender than early sown ones. Carrots do not like a wet season, hence in 1903 the Carrot crop was unsatisfactory—G. CARPENTER, Byfleet, Surrey.

(To be continued.)

Some Notes on Crocuses.

This season one was rather despondent as to the success of the Crocuses, so wet and cheerless was it for the early species, which need all the sunshine they can obtain in our climate. Some few did little good, but those which dallied long were rewarded by better weather, and, as this is written, are most delightful.

THE DUTCH CROCUSES.

It is almost needless to say that there is nothing so bright as the old Golden Yellow, as we familiarly call that form of *C. aureus* which used to be called *C. mæsiacus*. It is glorious on a fine day, and one can well understand how Dr. Forbes Watson was inspired by it to write in praise of its beauty. Beside it there is nothing so gorgeous or so cheering in these days of spring. The many varieties of *Crocus vernus*, which we term the "Dutch Crocuses," are charming as well, with their flowers of white, purple, lilac, or striped or marked in various ways. Here, too, there are a number of varieties not so well known, such as George Maw, Leedsii, Leucorhynchus, and several others, smaller than the Dutch ones as a rule, but very beautiful.

Then many other species and their varieties have opened, and are very delightful. One can only select one here and there among the least plentiful or the most beautiful for notice.

CROCUS CANDIDUS.

This is a lovely white Crocus from the Troad, not at all well known, but among the most delightful of all spring species. In the form here the outside of the segments is grained with a pale purple in a delightful way, which adds much to the appearance of the Crocus when not open to the sun.

CROCUS KOROLKOWI FUSCO-TINCTUS.

One must disclaim all responsibility for giving such a name to a charming little yellow Crocus, which is here blooming in front of a clump of Daffodils, not very far advanced. The Crocus is a little late, so that it comes into rivalry with the grand old Golden Yellow. As a newcomer, it may thus well keep in the background, but it is valuable for its small size and free blooming. It has proved the best of the forms of *C. Korolkowi* that I have cultivated here; in fact, it has been the only really satisfactory one as yet. It has small, bright yellow flowers, which are not marked on the outside with such a dark brown colouring as the typical *C. Korolkowi*, but instead are grained or tinged with a pale brown, something after the way of that on *C. aureus fusco-tinctus*, but quite distinct. I think it fully a neater flower than that. It is a Turkestan species, but probably extends to some extent beyond Turkestan.

CROCUS TAURI MELANTHERA.

This black-anthered Crocus, with lilac-blue flowers, is a rare form, although Mr. E. A. Bowles, our great Crocus specialist of the present day, considers it quite distinct from *Crocus tauri*, and supports his views by convincing proofs to those who have an opportunity of examining the plants. It is a rare plant, and

hardly known in gardens. Its beauty is great, however, and in time it will probably be in demand by lovers of the Crocus.

CROCUS ÆRIUS.

Although this lovely little Crocus has become more plentiful through some importations, it is yet far from common. For ordinary purposes we may call it blue, although there is not a truly blue Crocus in existence, as all have more or less purple in their tints. It seems rather variable, as some I had sent me from Asia Minor varied in shade, and among them were some rather prettily marked on the outside. We have also here another form, the finest I have yet seen. This came through Mr. Smith, of Newry, and is the largest and most ornamental form of *C. ærius* I have yet cultivated. It is lighter in the inside than the others I have cultivated here.

CROCUS SIEBERI PURPUREUS.

This is a pretty and scarce form of the early *C. Sieberi*, a general favourite with those who know it, and a hardy little



Phacelia viscida.

flower of much beauty. It is fairly well known, and comparatively cheap, but the darker variety, called *purpureus*, is expensive for a Crocus. It has purple flowers, but the purple is not of a dark, but a light hue. Although one cannot say that the difference in shade from that of the type equals the monetary difference in cost, this variety is a suitable addition to a collection which has any pretensions to being anything like complete.

Many others are in flower, but these may suffice for notice at present.—S. ARNOTT.

Phacelia viscida.

This compact, branching Californian annual (of which an illustration of a flowering shoot is shown) was formerly named *Eutoca viscida*, but that genus has been submerged. The plant grows about 1 ft high, and flowers from July to September, the colour of these being blue or purplish. Other meritorious *Phacelias* that are but seldom seen are *campanularia*, *Parryi*, *sericea*, *grandiflora*, and *Whitlavia*. Seeds may be sown on the open borders early next month.

British Birds.

(Continued from page 276.)

THE GREENFINCH (*Fringilla chloris*) frequents gardens, shrubberies, and cultivated lands, and feeds on seeds and insects. Sometimes, not commonly, it plucks up sprouting seeds and seedlings, similar to the chaffinch, and takes a share of grain, but is very useful in destroying weeds or their seeds, such as Charlock, Dandelion, Groundsel, Chickweed, and Plantain. Though sometimes visiting orchards, fruit plantations, and gardens in flocks, and charged with taking blossom buds, I have not found an authenticated instance.

THE HAWFINCH (*Coccothraustes vulgaris*) is very shy, and seldom ventures out of thick woods. At times it makes descent upon Peas in gardens and even on corn in fields. It feeds, however, mostly upon what it can obtain in the woods, copses, and hedges, feeding upon wild fruits, such as Hornbeam, Holly, Hawthorn, Dog Rose, &c.

THE JAY (*Garrulus glandarius*) is rather a shy bird, preferring to reside in woods, and seldom coming into the open country. It, however, visits gardens, and devours Peas wholesale, chiefly in the early morning and evening, and is very difficult to repress, even by gun, being extremely wary. It is also said to feast on fruits, especially ripe Cherries, but I have not noticed this. It also feeds upon acorns and beechmast. For worms, snails, cockchafers, and other insect pests or their larvæ it has a strong appetite, also for mice, eggs, and young birds.

THE HOUSE SPARROW (*Passer domesticus*) is active and fearless. The food of the birds consists of grain, vegetable substances, and insects, therefore they are useful to horticulturists and arboriculturists, also agriculturists in their raids on destructive insect larvæ when rearing their young. When numerous, however, the adult birds and fledged young sometimes do considerable damage in gardens and fields. They are the most destructive, because most numerous, near towns and farmsteads. In gardens they devour sprouting seeds and seedlings, such as Lettuce, Radish, Salsafy, Turnip, and all the Brassica tribe; feed on tops of Peas, Lettuces, Spinach, especially winter Spinach; destroy buds of Plum trees, Gooseberry and Currant bushes, and sometimes pull the blossom of Apple trees in pieces; tear *Polyanthus* and Crocus blooms, not infrequently attacking Carnations. In fields the adult birds and young of the season feed upon the ripening grain, and live almost exclusively in the fields, deserting the towns, villages, and farmsteads for a time. Later, they live mainly round human habitations, taking grain from the stacks and poultry yards, and in towns and villages doing much scavenger work about dwellings and in streets, yards, &c. Ricks and thatch are damaged by them, and rain-water pipes are frequently blocked by their nests, and it is said—I have not seen this—to oust the swallow and house martin from nesting. The other side of the sparrow question is the bird's close association with man, his ways of scattering their food about causes them to become scavengers; they eat vast quantities of weed seeds, feed largely upon small caterpillars and aphides, devour not a few moths, with some butterflies, and rear their young more upon insect food than any other kind. Such are my observations of half a century.

Thinning the number of sparrows is the wisest course. In most localities the sparrow-catcher, with a purse-net, captures sufficient birds to pay him for its employment at night against ivy-clad buildings, hay or corn stacks, or over evergreen bushes, and in most cases clears these creatures quite fast and close enough to serve the best interests of the gardener and town denizen, for these may and should protect their crops of plants, flowers, fruits, and vegetables. With the former it is different. He is practically at the mercy of the townsman, it being well-nigh impossible to cultivate cereals profitably in the immediate vicinity of villages and towns. Farmers may help themselves by destroying eggs and broods in the breeding season through the agency of sparrow clubs. What use? The great breeding place of sparrows is the town and its environs, from whence the birds, old and young, depart in flocks to the fields, and reap, in many cases, more grain than the farmer does. Let the townsman pay for this through the County Council appointing an assessor of damages to crops by sparrows, and requite the farmer for his loss out of the rates. The burden would then fall equally on all, and it would soon end the plethora of sparrows.

THE CROSSBILL (*Loxia curvirostris*), formerly very destructive to orchards by splitting Apples in halves so as to get at the pips, is now too rare to do any damage. The principal food is seeds from Fir cones.

THE COMMON BUNTING (*Emberiza millaria*) collects in large flocks in the late summer, autumn, and winter, and feasts upon corn in fields and rickyards. Its principal food is the seeds of weeds.

THE YELLOWHAMMER (*Emberiza citrenella*) is not nearly so common as the preceding species, though similar in habits, feed-

ing upon grain and seeds of weeds. Great numbers of buntings are caught in nets or shot for the price they will fetch in the markets, but chiefly of the common bunting. Sparrow-pie is also said to be excellent.

THE SKYLARK (*Alauda arvensis*) charms alike by its song or by its flesh at table. It sometimes makes sad havoc of seed corn, especially late autumn sown, but it lives principally upon small seeds and grasses, and feeds largely on small slugs and worms, caterpillars, and various insects or larvæ. Immense numbers of these birds are caught annually and sent to the London and other markets.

THE STARLING (*Sturnus vulgaris*) lives principally about buildings during breeding time, and the immediate neighbourhood derives great benefit by the insects collected and consumed in rearing the young. After breeding it repairs to the fields, and the large flocks scour the land in a very systematic manner for pests, such as leather jackets (grubs of *Tipula*), woodlice, millipedes, worms, snails, or slugs, and other ground insects or their larvæ, passing the whole year in search of animal food. Albeit, the starling is very destructive to Cherries, apart from this it is one of the most useful of British birds. In a few instances it has been known to destroy plantations by roosting in a particular part in great numbers by its droppings.

THE JACKDAW (*Corvus monedula*) will almost eat anything: insects and their larvæ, grubs being much relished, also grasshoppers and beetles, kills and eats mice, eggs and young birds, fish, crustacea and mollusca, worms, &c. As it builds in church towers and steeples it must clear the country around of many injurious pests. At other times it, along with rooks, exercises its benign services over the whole country. It is recorded as taking Cherries, but I have not noticed this, yet its proclivities for seed corn and Potatoes equal that of rooks.

THE ROOK (*Corvus frugilegus*) lives in semi-domestication, usually inhabiting a grove of trees near a house, or in a park during breeding time, and termed "rookeries." Where these exist in pleasure grounds the litter of sticks and the droppings whitening everything, not to mention the smell of ammonia, are great nuisances. Shooting the newly fledged birds affords some compensation, besides gives the birds not slaughtered an intense horror of guns, this aiding scarers immensely, or the sight of a gun is enough to make the rook clear off. The rook is said to have an "eye and tooth" for Cherries and Pears, things I have not seen, but it dearly loves Walnuts, and will carry off most of the crop in many cases unless prevented by the sight and discharge of a gun. In the fields the rooks pull up young corn and newly-set Potatoes: indeed, unmolested, would leave little for a crop. The idea that this is done to get at grubs and wireworm is pure prejudice, for the rooks kept from their depredations the crops are had in due season. Nevertheless, the rook is decidedly beneficial. It devours countless insects: beetles, moths, wireworms, leather-jackets, slugs, snails, worms, woodlice, millipedes, and caterpillars, of the winter and other moths. Indeed, the good it effects, especially in breeding time, is incalculable and beyond compare with its depredations on useful crops. But, as with sparrows, there may be too much of a good thing, for certain ends are not effected by the same means, and too many rooks may lead to depredations in poultry and pheasant rearing, as I have noticed in a few cases, grounds that are disastrous to these cultures, both poultry and pheasant rearers complaining of rook and jackdaw ravages. So with farmers, too many rooks may entail so much expense in scaring as to prejudice the profits.

Migratory.

Partly Insectivorous, and Partly Frugiferous.

THE GARDEN WARBLER (*Sylvia salicaria* or *hortensis*) arrives in England in April and departs towards the end of August or the beginning of September. Almost every part of England is visited by this bird, and especially those counties where there are thick woods and plenty of water. It is one of our sweetest songsters, esteemed for its melody, and thus pardoned by most people for its occasional depredations on fruit. Its nest is built in hedges, and situated near the ground. Eggs four or five, of a whitish grey colour, spotted with brown towards the large end. It chiefly confines its attacks on fruits to late Cherries, or wished to be kept some time against walls, Raspberries, and Currants. Small mesh (pilchard) netting is the only safe protection. It lives mostly upon insects, feeding its young with them.

THE BLACKCAP WARBLER (*Sylvia atricapilla*) pours forth its sweet notes from the concealment of some thicket or tuft of trees, and among bushes and brambles builds its nest of dried grass, moss, and hairs; eggs five, reddish brown marked with dark spots. It feeds the young entirely upon insects, chiefly small caterpillars, and lives itself more upon insects than on fruit, though it is rather fond of Cherries, Raspberries, &c., and only small-mesh netting can exclude it.—GEO. ABBEY.

(To be continued.)

Societies.

Royal Horticultural, Drill Hall, April 5th.

The exhibition on Tuesday last was again of an interesting and varied character, but the attendance was meagre, according to expectations. The Narcissus Committee made one award; the Orchid Committee four; the Floral six; but the Fruit and Vegetable Committee had no single exhibit before them. Thirty-nine new Fellows were elected. A lecture on the "Suburban Garden," by Mr. P. G. Maule, was treated from the designer's point of view.

Orchid Committee.

Present: Mr. Norman C. Cookson (in the chair); with Messrs. James O'Brien, de B. Crawshay, R. Brooman-White, H. M. Pollett, H. Ballantine, Walter Cobb, James Douglas, F. Wellesley, W. A. Bilney, H. T. Pitt, A. A. McBean, F. W. Ashton, M. Gleeson, W. Boxall, W. H. Young, H. A. Tracy, H. G. Morris, and H. Little.

Orchids were not numerous. Messrs. H. Low and Co., Bush Hill Park, Enfield, had a group in which were *Dendrobium Boxalli*, *Lycaste costata*, *Odontoglossum Harryano-crispum*, *Cattleya intermedia alba*, and *C. i. superba*.

Mr. W. Thompson, of Stone, Staffordshire, contributed a group of *Odontoglossums*; and Mr. H. T. Pitt had a large and varied group for which he obtained a gold medal. His spotted varieties of *Odontoglossum crispum* were of high merit.

The committee made the following medal awards: Gold to Mr. Pitt, Stamford Hill; silver Banksian to Messrs. Hugh Low and Co., Enfield; silver Flora to W. Thompson, Esq., Stone.

Narcissus Committee.

Present: Rev. G. H. Engleheart (in the chair); with Messrs. S. Eugene Bourne, Charles Macmichael, Charles T. Digby, Arthur R. Goodwin, R. Dean, E. A. Bowles, George S. Titheridge, W. M. Copeland, J. D. Pearson, A. Kingsmill, E. Willmott, R. Sydenham, John Pope, Walter T. Ware, Von de Graaff, P. Rudolph Barr, James Walker, and Charles H. Curtis.

The groups of Narcissi were generally admired, but they strike one on the whole as being below the standard of last year. Probably a little later we shall see them in better form. Messrs. Barr and Sons, King Street, Covent Garden, made a nice display, having most of the popular varieties present—*Madame de Graaff*, *Gloria Mundi*, *Victoria*, *Bridal Veil*, *Princess Ida*, *C. J. Backhouse*, *Osiris*, *Constance*, and *King Alfred*; while in the newer varieties *Henri Vilmorin*, *Monarch*, *Peter Barr*, *Lucifer*, and *Lord Roberts* were greatly admired.

Messrs. Hogg and Robertson, Dublin, contributed an extensive display which proved attractive, for the blooms were as fresh as when gathered. In the large sections *Sir Watkin*, *Empress*, *Brigadier*, *Victoria*, and *Madame Plomp* were amongst the best, and in the smaller flowered section were *W. P. Milner*, *Mrs. G. F. Brooke*, *Princess Ida*, *C. J. Backhouse*, and *Commodore*.

Mr. Chas. Dawson, Roremorran, Gulval, Penzance, staged a collection which attracted a great deal of attention. Some of the best were *Kittywake*, *Puritan*, *Homespun*, *White Slave*, *Citron*, *Weardale Perfection*, *Flambeau*, and *Siren*. All the flowers were well developed, and if one might judge from the manner in which the fanciers gathered round the group, to the exclusion of the "general public," they must have been unique.

Messrs. F. W. Currey, The Warren Gardens, Lismore, Ireland, made an extensive display, the blooms being well developed. A few of the most striking comprise *Ard Righ*, *Henry Irving*, *Golden Rose*, *King Alfred*, *Duke of Bedford*, *Sir Watkin*, *Emperor*, and *Horseneldi*. In the smaller sections *Amabilis*, *Duchess of Connaught*, *cernuus plenus*, and *Leda* were good.

The committee made the following awards—Silver Floras to Mr. C. Dawson, Gulval, Penzance, and Messrs. Barr and Sons, King Street, Covent Garden. Silver Banksian to Miss Currey, Lismore, Ireland, and to Messrs. Hogg and Robertson, Mary Street, Dublin.

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. R. Dean, John Green, W. Howe, R. Hooper Pearson, John Jennings, C. R. Fielder, Chas. Dixon, G. Reuthe, H. J. Cutbush, Chas. E. Pearson, J. W. Barr, Geo. Gordon, H. J. Jones, W. P. Thomson, E. H. Jenkins, Wm. J. James, C. E. Shea, Geo. Nicholson, James Walker, Geo. Paul, and Chas. T. Druery.

Messrs. F. Cant and Co., Braiswick Rose Gardens, Colchester, made a beautiful display of cut Roses, some of the blooms being excellent. The chief varieties were *Commandant Felix Faure*, *Lady Roberts*, *Madame Hoste*, *Peace*, *Madame Viger*, *Niphetos*, and *Dainty*.

Clematises in flower were staged by Messrs. T. S. Ware, Ltd.,

Feltham, interspersed with plants of *Ampelopsis Veitchii*. The Clematises were trained low to wire rings, which did not add to their effectiveness, though the exhibit would prove useful to anyone making a selection of varieties for planting. The most conspicuous were Nellie Moser, Marcel Moser, Mrs. Hope, Lady C. Neville, La France, and Mrs. G. Jackman.

Messrs. R. and G. Cuthbert, Southgate, again presented a group of forced flowering shrubs. Good standard specimens of *Wistaria sinensis*, *Azalea mollis*, *Lilacs*, and *Ribes* were noted. The groundwork was formed of *Viburnum Opulus*, *Azaleas*, *Genista Andreana*, *Acers*, and *Spiraea Thunbergii*; while palms, ferns, and a variety of foliage plants were used effectively to display the exhibit.

From Messrs. B. Cant and Sons, The Old Rose Gardens, Colchester, came a small group of pot Roses, the varieties being Blush Rambler in excellent form—the plants were covered with bluish pink flowers—and Maharajah, a single, deep crimson variety, with leathery foliage, which bears a strong resemblance to Captain Hayward.

Hardy and alpine plants were staged by Messrs. J. Peed and Son, West Norwood. The Primulas largely predominated, and comprised *P. denticulata*, *P. cashmeriana*, and *P. rosea*. Auriculas, Saxifragas, and Scillas were also exhibited. The cocoa-nut fibre refuse employed, however, destroyed the natural effect.

Hardy plants also came from Mr. G. Reuthe, Keston, Kent, who arranged a nice exhibit of *Shortia galacifolia*, *Clionodoxa sardensis*, a pretty pan of *Primula rosea grandiflora*, *P. acanthis duplex*, and *P. elusiana*, amongst a variety of other plants. A few pots of Daffodils were employed as a background.

A table of Clivias, Azaleas, and Hippeastrums were contributed by H. Little, Esq. (gardener, Mr. G. Walls), The Baron, Twickenham. The Clivias were fully developed, and the Azaleas were masses of bloom, while the Hippeastrums were of considerable merit.

Messrs. W. Cutbush and Son, Highgate, made a grand display of forced hardy plants, the Magnolias being undoubtedly extra fine. These plants were large, and carried a mass of flowers. The groups contained *M. amabilis*, *M. Soulangeana*, and *M. stellata*. Lilacs were also exhibited both as standards and bushes, while *Viburnums*, *Laburnums*, and *Pyruses* in variety were prominent. The same firm also contributed an effective display of alpine plants, in which were noted Tulip La Rêve, Iris Susiana in capital form, *I. Haynei*, *I. atro-purpurea*, and *I. iberica*. The Montan Peonies gave a patch of rich colouring. The alpine included *Shortia galacifolia*, *Phlox canadensis*, Primulas in variety, and *Cheiranthus Allioni*, as well as a number of other popular subjects.

Messrs. Jas. Veitch and Sons, Ltd., Chelsea, staged a fine exhibit of *Xanthoceras sorbifolia* in pots. The shrubs were full of flower, and produced a fine effect. This flowering shrub is almost unknown, but when grown and flowered as shown here, it is far finer than *Staphylea colchica*. Another hardy alpine group was arranged by Messrs. G. Jackman and Son, Woking; and Mr. Potten, Camden Nursery, Cranbrook, exhibited a collection of Roses both in a cut state and in pots. The latter were chiefly Dorothy Perkins (flowering about a foot high), Lady Battersea, and Madame Jules Gravereaux, each in good form. In the cut varieties were noted Frederick Harms, Duchess of Portland, and La Tosca.

Zonal Pelargoniums were staged by Messrs. H. Cannell and Sons, Swanley, and needless to say they were quite up to Messrs. Cannell's usual form. A few pieces of Mahonia below the glasses gave a pleasing effect. Varieties of merit were: The Ghost, General French, Lady Roscoe, Duke of Connaught, Countess of Hopetoun, Mary Pelton, The Sirdar, and Mrs. Williams. Messrs. W. Bull and Sons, Chelsea, contributed a small display of foliage plants relieved with a few Hippeastrums.

Mr. Amos Perry, Hardy Plant Farm, Winchmore Hill, made a nice display of hardy flowers, and Primulas were much in evidence. *P. rosea*, *P. denticulata alba*, and *P. marginata grandiflora*. Violet Rose Perle, of novel colour—purplish rose, beautifully perfumed; and Aubrietia Perry's Blue (a large variety), also *Scilla siberica alba*, *S. bifolia alba*, *S. b. carnea*, and a good group of *Anemone Pulsatilla*, were shown. *Saxifraga apiculata*, *S. Greisbachii*, and *Rubus australis* were included.

Mr. G. Mount, Canterbury, made a grand display of Roses cut with long stems. The foliage was equal to the flowers, which could only be described as magnificent. The varieties were Mrs. J. Laing, Mrs. Sharman Crawford, Ulrich Brunner, Baroness Rothschild, Frau Lilla Rautenstrauch, Captain Hayward (in perfect condition), and Bessie Brown.

Azaleas and Roses formed the exhibit of Mr. Chas. Turner, Slough. Among the former were noted Spitfire, deep crimson; Temperance, in colour like *Rhododendron ponticum* (but why the name?) Elaine, a beautiful Rose; and Mdlle. Emma Eckhaute. The Roses were Madame Levavasseur, all dwarf, and well flowered.

Messrs. J. Cheal and Sons, Crawley, exhibited four boxes of Primulas and rock plants, with a background of suitable shrubs.

The Primulas were bright and effective, and included *P. Cashmeriana*, *P. rosea*, and *P. denticulata*. The varieties of Primulas were such as Miss Massey, Cantab (a pale blue), blue hybrids, and Single Lilac were effective, while *P. japonica* was also to be seen in flower.

The medals awarded were: Silver-gilt Floras to Cutbush, Highgate; Geo. Mount, Canterbury; F. Cant, Colchester. Silver Flora to R. and G. Cuthbert, Southgate. Silver Banksians to B. R. Cant and Sons, Colchester; J. Veitch, Chelsea; J. Russell, Richmond; H. Little, Twickenham; Cannell, Swanley; G. Reuthe, Keston; A. Perry, Winchmore Hill; Geo. Jackman, Woking.

Certificates and Awards of Merit.

Azalea, Mme. Emile Eckhaut (C. Turner, Slough).—An indica variety with good-sized double flowers coloured rosy-lilac in the centre, and each petal has a broad white edge. A.M.

Clerodendron myrmecophilum.—An erect growing species with terminal thyrsoid inflorescence of orange-crimson flowers borne in whorls. The leaves are of a leaden hue, and glabrous, oval-elliptic in form, and about a foot in length. A.M.

Clivia, Lord Bathurst (Lady Bathurst, Cirencester).—The scape bore over twenty large-sized, rounded, open-mouthed, bright orange-scarlet flowers. The scape forms a bold round head. A.M.

Cymbidium Lowi var. *Luciani* (Linden & Co., Brussels).—The lip is particularly showy, with a rich, velvety crimson, shield-shaped tip, white behind, the rest of the flower greenish brown, as in the form. The raceme bore seventeen flowers. A.M.

Cyrtanthus × *Marian* (J. O'Brien).—A beautiful hybrid with flowers like the Trumpet Honeysuckle, i.e., they are 2in. long and tubular, coloured orange-scarlet. The cross is between *C. lutescens* and *angustifolius*. A.M.

Dendrobium Wardianum Fowleri (J. G. Fowler, South Woodford).—A cultural commendation was awarded.

Iris Haynei (W. Cutbush & Son).—A handsome Cushion Iris, already described, *Journal of Horticulture*, March 24, p. 261. A.M.

Laelio-cattleya Digbyana Schroderae alba (Mr. J. Bradshaw).—A white form with nicely fringed rounded lip. The throat of the labellum is greenish. The flower is of large size. Award of Merit. From The Grange, Southgate (gardener Mr. Geo. Whitelegg).

Laelio-cattleya Mona (J. Veitch & Sons, Ltd.).—Parentage: *Cattleya Schroderae* × *Laelia flava*. A beautiful hybrid of *Laelia* character, the segments coloured deep primrose yellow, and the wavy-edged lip is rich yellow in the inside of the tube. A.M.

Narcissus, Alert (J. R. Pearson & Sons).—An improved form of *N. obvallaris*, said to be extremely vigorous and healthy, growing in soil where *obvallaris* dies out. A.M.

Odontoglossum cirrhosum, Pitt's variety (H. T. Pitt, Stamford Hill).—This fine variety, which was described in our Temple Show issue last year, has now received the higher award (F.C.C.). The segments are broad in the centre with long drawn-out apices.

Primula obconica (strain) (G. Schneider, Fulham).—The colours were white, rose-lilac, and rose-purple. The white variety particularly had fringed corollas. A.M.

Isle of Wight Horticultural.

The last monthly meeting of the session was held at Warburton's Hotel, Newport, on Saturday, April 2, under the presidency of Dr. J. Groves, J.P. Mr. A. W. Kime, of West Hill Gardens, Yarmouth, read a most practical and instructive paper on "Cultivation of Hardy Border Flowers." Col. Pearson Crozier's gardens, over which Mr. Kime has had charge for several years, are noted throughout the island for grand annual displays of spring and summer bedding, and also for its extensive collection of hardy border plants, embracing many genera. It is, therefore, almost superfluous to add that both the gallant colonel and his genial and talented gardener are enthusiasts and experts in the cultivation of these latter indispensable floral treasures. Mr. Kime gave in concise language his mode of treatment with *Iris Kämpferi* and *Germanica*, and others of this genus, *Montbretias*, *Antirrhinums*, *Alströmerias*, *Gladioli*, *Delphiniums*, and many others, dealing fully with propagation, habits, time of flowering, nature of most suitable soils, staking, watering, &c. Mr. Kime's paper was highly appreciated by those present, and the essayist, on the proposition of the chairman (who contended these subjects constituted and combined the best possible plants of all for garden adornment) a vote of thanks was given. There were several exhibits, notably Zonal Geraniums (trusses) brought in by the lecturer, also Tulips and *Iris Saxifraga cordata* by Mr. Taylor Wroxall. The matter of having an excursion to Temple Show, London, was discussed, the secretaries being requested to ascertain if convenient arrangements could be made for all members. Regrets were expressed on Mr. W. Tribbick resigning the secretaryship, his past services were warmly eulogised, and the grateful thanks of the association tendered him.

Bristol Gardeners'.

The members of the Bristol and District Gardeners' Mutual Improvement Association met at St. John's Rooms on Thursday evening last, under the chairmanship of Mr. E. Poole, and Mr. J. Milburn, of Bath, read a paper on "Hardy Trees and Shrubs." Mr. Milburn remarked that numbers of trees died owing to water being allowed to lodge in the forks of branches, this ending in death. These hollows should be filled up so that no rain could lodge. Prizes for two pots Mignonette went to, 1st, Mr. W. A. F. Powel (gardener, Mr. Raikes), and 2nd, Mrs. Coleman (gardener, Mr. Spry). For one orchid the successful competitors were Mr. J. C. Godwin (gardener, Mr. McCulloch) and Mr. Francis Tagart (gardener, Mr. Binfield). The society's certificate of merit was awarded to Mr. A. Shipley (gardener, Mr. Wakefield) for a seedling *Amaryllis* carrying its first bloom. —H. K.

Ware Horticultural.

The fortnightly meeting of this society was held in the Vicar's Room, when there was a good attendance of members, presided over by Mr. W. Durrant. Mr. J. Marsh of Hertford, read a very useful paper on "Potato-scab." He also staged some seed Potatoes to prove that his practice was of great service. He advocated giving a good dressing of soot or lime at the planting time, and to well till the ground before planting. An interesting discussion was taken part in by Messrs. Fulford, Spencer, Godfrey, Gilbert, Clibbon, Welch, Heath, Knight, Livermore, the secretary, and the chairman, the general opinion being that Potato-scab was caused by some insects in the soil, usually carried there by the manure used. The best remedy suggested was to avoid using animal manure as much as possible, adding lime or soot with a good dressing of burnt refuse instead. Mr. Marsh was accorded a hearty vote of thanks for bringing such a useful subject forward. Questions were asked as to the best time for pruning Roses. It was suggested that Hybrid Perpetuals and Hybrid Teas should be pruned at once, and Teas a little later, always taking the position of the garden into consideration. There was a fine display of flowers and pot plants, consisting of Cinerarias, Mignonette, Narcissus, Roses, Azaleas, Violets, and Lily of the Valley. Two very fine pots of *Begonia Gloire de Lorraine* came from Mr. F. Noyce, gardener at Presdales, and a wish was expressed that Mr. Noyce would read a paper on winter-flowering *Begonias* at some later date. The usual vote of thanks was accorded the judges, exhibitors, and chairman. The next meeting will be on April 26, when Mr. F. Heath, foreman at Presdales Gardens, will read a paper on the culture of *Iris*s.

Birmingham Gardeners'.

At a meeting of the Birmingham Gardeners' Association, Mr. C. R. Bick, Bickenhill Nurseries, Olton, near Birmingham, opened a discussion upon a most important subject entitled "Ways and Means of Further Increasing the Utility of Our Association." Mr. Bick thought that one of the most potent agencies would be a greater increase in membership of head gardeners in the district, also a more frequent attendance of the same at the meetings. It was not for lack of high-class lecturers, an excellent lending library, and also competitive prizes and certificates for objects of merit, that a certain indifference had existed. The speaker, however, somewhat pungently remarked that he was afraid selfishness and professional

conceit were unfortunately responsible for the lack of interest indicated, and mentioning the assumption that individually they knew sufficient for professional purposes, and what was unknown was not worth knowing. The chairman (Mr. Walter Jones) invited the opinion of the members present. Messrs. T. Humphreys, A. Cryer, C. H. Herbert, W. Spinks, W. L. Deedman, H. Snead, and W. Gardiner took part in the discussion. In the competition for the prizes offered by the committee for three pots of *Narcissi*, distinct, Mr. R. Usher won the premier prize with an excellent exhibit; Mr. W. Mason second; and Messrs. J. Sceany and H. Snead were accorded equal thirds for meritorious examples. A cultural certificate was voted to Mr. C. Phoenix for two very good forms of *Dendrobium Wardianum*, with finely flowered, strong growths, in small pots.

Reading Gardeners'.

At the latest fortnightly meeting of the Reading and District Gardeners' Mutual Improvement Association the president, Mr. Leonard Sutton, presided over a large attendance of members, the club room being crowded. The subject for the evening was "Fruit Culture," and was introduced by Mr. W. Barnes, of Bear Wood Gardens, who confined himself on this occasion to Peaches and Nectarines out of doors. His remarks were of a



Geranium pratense fl.-pl. (See page 294.)

very practical character, treating with planting, training, dis-budding, varieties, &c. Although the paper was a short one, yet a very animated and well-sustained discussion followed, in which Messrs. Exler, Bright, Townsend, Wilson, Tunbridge, Fry, Powell, Judd, House, Neve, Alexander, and the president took part. The exhibits were exceedingly interesting: Honorary, a splendid collection of Narcissi, Hyacinths, and Tulips, staged by Mr. F. Lever, Hillside Gardens, the most noticeable varieties being Emperor, Empress, Her Majesty, Van Zion, Figaro, Mrs. Langtry, Maximus, and Horsefieldi Narcissi; Baron de Tuyl, La Grandesse, Norma, Czar Peter, and Grand Maître Hyacinths; Blanche Hâtive, Silver King, Crimson Beauty, Vermilion, and Artus Tulips. Mr. F. W. Exler, East Thorpe Gardens, had a grand batch of Cineraria stellata; Mr. H. C. Loader, Holme Grange Gardens, superb Princess of Wales and Marie Louise Violets; and Mr. A. F. Bailey, Leopold House Gardens, blooms of Rhododendron Veitchi. For the certificates, Mr. H. House, of Oakfield Gardens, exhibited a well-grown plant of Clivia, and Mr. S. Ager, of Tidmarsh Manor Gardens, bunches, spray and buttonhole of Princess of Wales and Marie Louise Violets. The certificate was awarded to the Violets. Seven new members were elected.

The Irish Gardeners' Association.

Mr. Alex. Dickson gave, on the last night of March, which, by the way, went out like Taurus lunaticus, a Rose lecture to the members of the above society, who associated in full force to



Nycteria selaginoides.

hear him. It was premised that the great Irish Rose grower would have a good deal to say, and he had, and he said it; going over ground covering three parts of the globe, and time stretching back for a couple of thousand years. His practical points on planting and pruning were exhaustive, and must have satisfied the veriest tyro, but it was a matter for surprise that he should give away so generously much of the mystery and many of the secrets of successful hybridising, and Rose raising generally, considering that the rising generation of gardeners was strongly represented by our lads of the bothy. Hence, whilst predicting a marked increase in the sale of budding knives, it is hoped that no decrease in the amount from Newtonards will result, for if such should occur, in spite of the hearty vote of thanks accorded to Mr. Dickson, he would have to thank himself.—K., Dublin.

NYCTERIA SELAGINOIDES.—This pretty half-hardy annual requires no introduction. The seedlings—from seeds sown now—are planted out in beds and borders at the end of May, and the plants are in flower during June. It is a free-flowering compact growing plant, and very suitable for edgings. The terrible "new" name given to it—Zaluzianskia selaginoides—will never be accepted by horticulturists.



Hardy Fruit Garden.

APRICOTS.—Trees of these with us are not flowering so freely as usual. This is owing no doubt to the unfavourable weather of last season, causing the wood to be badly ripened. Where, however, there is promise of a heavy crop, and the blossoms are unduly crowded, it may be well if time can be found to remove those at the back of branches on some of the small and ill-placed. It will be necessary to protect the trees until the fruit is set. Do not be in too great a hurry to thin, as sometimes Apricots swell very irregularly, some quickly attaining a good size, and others remaining stationary and ultimately falling.

PEACHES AND NECTARINES.—The remarks as to protecting Apricots apply equally to those on walls outside. Our trees are much later than usual, and have not yet needed covering, but double fish nets will be placed over them within the next two or three days. In colder districts blinds of tiffany or canvas should be provided either on rollers or so arranged that they may be quickly removed in the daytime or replaced during cold storms of hail and sleet. When netting is used care ought always to be taken to secure this from blowing about, as in violent winds it may be blown against the trees, and dislodge many flowers. Commence to disbud early. In removing superfluous shoots, it is wise to begin with the worst placed, gradually eliminating those not required until just sufficient remain for extending the trees and for growths to supply the succeeding season's crop of fruit. Keep up a sharp watch for insect pests, and if aphides appear, dust the portions attacked with tobacco powder. Immediately the fruit is set, the trees may be dressed with an insecticide, a solution of quassia and tobacco water being excellent for the purpose. Early action in this matter will frequently go a long way towards keeping the trees clean throughout the season. Be prepared to apply a fungicide in case of "leaf blister," and pick off the worst of the leaves and burn them should the disease become prevalent.

STRAWBERRIES.—Beds of these that have been previously forked over, and had all deep rooting weeds removed, should now be Dutch hoed when the surface of the soil is dry. When the proper weather conditions prevail, hoeing should be vigorously pushed on throughout the whole of fruit plantations, as millions of small weeds will now be pushing through the soil.

RECENTLY PLANTED TREES.—Those planted a short time ago against walls should not at once be nailed or tied into position; the roots and soil should be allowed to settle before this is done. Young Apple trees that have not long been planted may now have the young branches shortened, removing from a third to one-half according as the growths are strong or weak. Particularly is this pruning advisable when fruit buds have formed along the ends of the shoots, or these latter are badly ripened. If care is taken in disbudding, so that only a sufficient number of growths remain to ensure the proper form of the trees, much after pruning will be saved, and this will be decidedly to their benefit.

BUSH FRUITS.—A heavy dressing of dry ashes from refuse fires may with advantage be given to these, adding in the case of Gooseberries and Currants that produce weakly growth a good mulching of short manure. The fibrous roots of Currants quickly find the benefit of this. Many bushes will also at this season derive great benefit from applications of liquid manure. If there is any doubt as to this being too strong add an equal part of clear water before applying. A heavy mulching of manure should also be afforded to Raspberries if from any cause they have not already received attention in this respect.—J. W., Newent, Glos.

Fruit Forcing.

CHERRY HOUSE.—If the trees are heavily laden with fruit, the demand for nutriment will be greater, as such trees will be less vigorous than those with few fruits; and whilst the former will be benefited by the application of liquid manure, the latter should have clear water as often as required to maintain the soil in a thoroughly moist condition. Inside borders are more suitable for early forcing of Cherry and other fruit trees than outside ones, as they afford a better temperature, more corresponding to that of the house or that in which the trees are growing, rendering the progress of the crop more certain and satisfactory, provided due regard be paid to the affording of needful supplies of water. Attend to ventilation and temperature, admitting air from 50deg. and liberally at 65deg. Syringe the trees twice a day, and keep the surface of the border

damped. When the shoots have made four to five joints they should have the points taken out so as to form spurs, but those required for furnishing the trees ought to be tied in position early, and be carefully trained in their full length. Aphides must be kept under by repeated fumigation, as, if they obtain a hold, they are not only difficult to exterminate, but spoil the appearance of the fruit.

VINES: EARLY HOUSES.—Where the Grapes have commenced colouring, give the border a thorough supply of water where needed, and mulch with rather short material. A little air should be let in constantly, so as to allow of a circulation, and prevent moisture from being condensed on the berries. When the Grapes are fully ripe, only afford sufficient heat to prevent the temperature falling below 60deg, maintaining a moderate amount of moisture for the benefit of the foliage. If the weather prove bright, a light shading will assist Hamburgs in retaining colour, allowing moderate lateral extension.

SUCCESSION HOUSES.—Thinning the branches and berries requires early and close attention, as every surplus bunch or berry kept longer than is necessary to make a selection of the best takes from the ultimate size and finish of those left for the crop. Likewise, in disbudding and stopping, every needless growth is only so much energy wasted. It is not good practice to allow more foliage than can have full exposure to light and air. Borders require plenty of water, and weakly Vines improve wonderfully with tepid liquid manure. Avoid, however, a sodden and sour condition of the soil, as this leads to indifferent colouring and shrinking.

VINES IN FLOWER.—Muscats and other shy-setting Grapes require a rather high temperature to set freely, the points of the bunches being kept well up to the light, and a free circulation of air, with a fair supply of atmospheric moisture, to prevent the young foliage suffering under the influence of bright sun. The temperature may be maintained at 70deg by night, but with the Vines in good condition, free setting is effected with 65deg or even 60deg at night, a little air being admitted constantly, and 70deg to 75deg by day, advancing to 85deg or 90deg from sun heat. When the Vines are in flower they should be lightly tapped on the stem each day after the houses have been ventilated an hour or two, or they may be brushed over with the hand, which rids the flowers of their caps, sets the stamens free, and disposes the pollen on the stigmas. If there be no pollen visible as a yellowish dust when bunches are brushed over with the hand, it should be taken from varieties that afford it abundantly, as Alicante and Black Hamburgs, and a large camel-hair brush be filled with it, and the bunches brushed over after the hand has been drawn over them, refilling the brush with pollen as occasion requires, it being collected in a sheet of white paper turned up at the edges. Alnwick Seedling, Mrs. Pince, Lady Downe's, and other varieties liable to produce small, seedless berries, should be carefully fertilised on fine days, when the caps part freely from the flowers.

VINES SWELLING THEIR CROPS should have a moist atmosphere, damping the house two or three times a day, and at closing time with weak liquid manure. Syringing the vines, except for special purposes, is best avoided, as the water generally leaves a stain. Admit a little air early, increasing it with the advancing temperature, and maintain it at 80deg to 85deg through the day from sun heat; close early, so as to raise to 90deg or more, and admit a little air at the top of the house before nightfall. This prevents moisture accumulating on the foliage, and is a safeguard against scorching. A temperature of 60deg to 65deg at night and 70deg to 75deg by day is sufficient from fire heat.

YOUNG VINES allowed to break naturally, and assisted with a little fire heat when the buds have grown about half an inch, make rapid progress, but they need not have a higher temperature than 50deg to 55deg at night, and 60deg to 65deg by day after the leaves appear, relying mainly on sun heat, with gentle warmth in pipes on cold days. Remove all buds except one at each break; retaining the strongest, and leave the shoots about 18in apart on both sides of the cane. Crop permanent Vines lightly, but supernumeraries may carry full crops.—G. A., St. Albans, Herts.

The Flower Garden.

TUBEROUS BEGONIAS FOR BEDDING.—The tubers of double and single tuberous Begonias to be used for beds, may be started now in boxes of soil placed in a greenhouse or late vinery. A temperature of 45deg to 50deg is ample. The growths will be all the stronger for starting slowly. Fill the boxes with some good light soil, and bury the tubers a few inches apart according to their size, just leaving the crowns level with the surface. The compost should be used moist, so that no water is required, though a gentle syringing or dewing over in fine weather will be beneficial until growths begin to push, when afford more moisture to the soil. Allow the Begonias to continue growth in the boxes, gradually hardening for planting at the usual season.

DIVIDING BORDER CHRYSANTHEMUMS.—A selection of good varieties from among the older Japanese, reflexed, and pompon varieties are usually cultivated in borders not only for the bright effect they give, but for the number of useful sprays of bloom which may be obtained for cutting. Being very hardy and rarely failing to produce good, strong growths if periodically lifted, divided, and replanted, this operation may be done now. After a few years' growth in one position the ground becomes exhausted of food and moisture, hence reducing the plants in size. Deeply digging and improving the soil will prove beneficial. In replanting, the centre or inner parts of clumps may be discarded.

YOUNG CHRYSANTHEMUM PLANTS.—Small plants of border varieties, including the early-flowering section, rooted from cuttings in pots, boxes, or frames, may well be maintained as they are for a week or two, allowing them to gain strength and become hardened before finally planting out.

HALF-HARDY ANNUAL SEEDLINGS.—Pots and boxes of seedling Stocks, Asters, Zinnias, Antirrhinums, Salpiglossis, Scabious, Phlox Drummondii, Marguerite Carnations, and other half-hardy annuals should have a period of hardening off in a cold frame preparatory to pricking them out in other boxes or in frames. They will also gain size and strength, and be better fitted for transplanting.

PRUNING IVY.—Ivy on walls, buildings, or other places where it requires curtailing, may be pruned back now to any extent. It is usually desirable to cut it in closely annually, and secure a new growth each season. By so doing the dead wood and leaves are readily removed. Carried out at this season new growth will soon appear, and a long period of bareness avoided.

PLANTING CLEMATISES.—Clematise of the various hardy kinds may be planted now against walls and fences. Well established plants in pots are the best. The roots may be loosened and spread out in some well prepared soil. Partially shorten the growths.

SOWING SEEDS OF PERENNIALS.—Many of the best perennials may be raised from seeds sown now in drills on a border of light soil outdoors. These may include Aconitum, Alyssum, Anemones, Aquilegias, Arabis, perennial Asters, Aubrietias, Delphiniums, Erigerons, Helenium, Heuchera, Hollyhocks, Iberis, Lychnis, Oenothera, Paeonias, perennial Poppies, Polyanthus, Primrose, Pyrethrums, Rudbeckia.

MONTBRETIAS.—Groups of these with their orange scarlet or yellow flowers produced in August or September must be planted now 3in deep, and 2in apart, on a sunny, well-drained, sheltered border.—E. D. S., Gravesend.

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible, with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

The Savings Bank, and Ambition.

In my previous note I merely put the question to "An Old Boy" for the purpose of pointing out that there are cases where young men, owing to circumstances, cannot save money. The individual I have in mind does not, however, reside in a bothy, nor has he ever done so. In earlier years he practised gardening as a hobby in his spare time, and as his working hours took up practically all the daylight, he was compelled to do much at night, especially in winter. At that time his daily labours had no affinity to gardening, but by some means or other he became acquainted with nurserymen and florists, and any moment likely to be otherwise wasted was spent in nurseries or retail depôts, and as a salesman, he was considered a first-rate hand, more especially because he could answer queries on this, that, and the other subject put by customers. Although not possessing any special education his tremendous capacity for reading up all sorts of subjects gave him a status somewhat above the average youth. He has remarked: "Everything is grist to the mill," and I know that he is truly an omnivorous reader. As a boy he worked in the house, became an excellent cook, afterwards a cycle repairer, spent several years as a baker, whilst his hobbies consisted of drawing, painting, electricity, photography, and gardening.

These traits he still possesses, but his intuition appears to be so great that he quickly grasps details upon all subjects. A friend of mine, a chemist, says that it is a pleasure to talk with this young man, because of his keenness to know something about chemistry. Yet a sculptor declared that he would teach him the whole art if he could keep himself for a period. Again, if he gets the opportunity to chat with a motorist or engine-driver, his delight is unbounded. As a sportsman, he is nothing. Football, cricket, &c., have little or no interest for him, but as a cyclist he is very keen, and thinks nothing of doing a 20-mile spin, after dusk, at a terrific pace. In photography he is by no

means a novice, he having no less than three machines, his latest being a magnificent half-plate, running him into £5 10s. He has no affinity with the bookworm, as he is considered by all to be a jolly fellow, with no evidence of starchiness, unless a person becomes too familiar.

In the gardening society that he is connected with he is looked upon as a power, for his desire to promote horticulture is evidenced by his giving prizes and instituting new classes at the annual shows. At the meetings he is frequently called upon to give a discourse, or, failing this, he blossoms forth as a comic singer or soloist. As a worker he possesses not a little energy, and in the summer season not infrequently works till dark, he being a single-handed man, with an odd boy to do small jobs. He is entirely an "outdoor man" at present, and, as such, displays considerable taste.

Like "A Sussex Journeyman," he is fond of his pipe, but is content with 8d. per week for that purpose, and his only liquor is lemonade. Of high class music he is very fond, but time prevents him patronising many concerts. He resides in lodgings, for which he pays 12s. per week. His bed never sees him more than six hours a day, and sometimes he does with four hours' rest. He visits some of the big shows with his notebook in hand, and it is considered amusing to notice how he fixes on to the representatives of exhibiting firms. He dresses neatly, and has gentlemanly manners, but does not ape the dude. That he is ambitious goes without saying, although I have never heard him state what he expects to do eventually. His motto is "Keep pegging on," and he apparently acts up to it.—G.

Covent Garden Market.—April 6th.

Average Wholesale Prices.—Fruit.

	s. d.	s. d.		s. d.	s. d.
American Limes, 400-500 in case ...	7	0 to 9	Grapes, Muscats, A., lb.	6	0 to 8
Apples, home cookers, bush.	6	0	" " B., lb.	2	0
" American, brl.	12	0	" Canon Hall, A., lb.	2	0
" Californian, case	7	6	" Gros Colman, A., lb.	1	6
Bananas, bunch	6	0	Lemons, per case	8	6
Chestnuts, bag	19	0	Lychees, box	1	2
Cobnuts, per lb.	0	7½	Oranges, per case	8	0
Cranberries, per case	10	6	Pears, per case	7	0
Figs, per doz.	12	0	" stewing, ½-sieve	9	0
Grapes, Alicante, lb.	2	0	Pines, each	2	0
" in barrel	12	0	Strawberries, A., lb.	5	0
			" B.	2	0

Average Wholesale Prices.—Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Jerusalem, sieve	1	0 to 1	Onions, per case	7	6 to 0
Asparagus, Sprue, bundle	0	9	" per bag	3	6
" Paris Green	4	6	" picklers, sieve	3	0
" English, bun.	5	0	" English, cwt.	7	6
Beans, dwarf, per lb.	1	6	Parsley, doz. bnchs.	4	0
" Madeira, basket	1	6	" sieve	0	6
Beetroots, per bushel	2	6	Parsnips, per bag	2	0
Brussels Sprouts, sieve	1	6	Potatoes, per ton	90	0
Cabbages, tally	2	0	" New Teneriffe, per cwt	12	0
Carrots, doz. bun.	2	0	Radishes, doz. bun.	0	9
" per bag	2	6	Rhubarb, per doz.	0	9
Cauliflower, doz.	1	6	Salad, small, pun., doz.	0	6
Celery, per doz. bun.	8	0	Savoy, tally	3	0
Cress, per doz. pun.	0	9	Seakale, per doz.	10	0
Cucumbers, doz.	3	6	Shallots, per lb.	0	1½
Endive, per doz.	1	6	Spinach, per bush.	3	0
Garlic, per lb.	0	2	Tomatoes, Canary Deep, lb.	2	6
Horseradish, foreign, per bundle	1	3	Turnips, doz. bun.	1	6
Leeks, per doz. bun.	1	0	" per bag	2	0
Lettuces, Cabbage, doz.	1	0	Watercress, per dozen bunches	0	4
Mushrooms, house, lb.	1	0			

Average Wholesale Prices.—Plants in Pots.

Most of the undermentioned plants are sold in 48 and 32-sized pots.

	s. d.	s. d.		s. d.	s. d.
Acacia Drummondii, doz.	12	0 to 50	Ericas, per doz.	6	0 to 12
Adiantums, per doz.	4	0	Euonymus, vars., doz.	4	0
Aralias, per doz.	4	0	Ferns in var., per doz.	4	0
Arbor Vitæ, per doz.	9	0	Ficus elastica, doz.	9	0
Aspidistras, per doz.	18	0	Genistas, doz.	6	0
Aucubas, per doz.	4	0	Hyacinths, Roman (48-pots), doz.	8	0
Azaleas, each	1	6	" Dutch	8	0
Begonias, per doz.	4	0	Lycopodiums, per doz.	3	0
" Gloire de Lorraine, per doz.	8	0	Lily of the Valley, doz.	9	0
Callas, per doz.	6	0	Marguerites, white, doz.	4	0
Chrysanthemum, doz.	6	0	Orange trees, each	3	6
Cinerarias, doz.	6	0	Palms, var., each	3	0
Coleuses, per doz.	4	0	Primulas, per doz.	4	0
Crotons, per doz.	12	0	Pteris tremula, per doz.	4	0
Cyclamens, per doz.	9	0	" Wimsetti	4	0
Cyperus, per doz.	3	0	" major	4	0
Daffodils, per doz.	6	0	Spiræas, doz.	6	0
Dielytra spectabilis, per doz.	12	0	Tulips, red, doz. roots	1	0
Dracenas, vars., doz.	12	0	" yellow, doz. roots	1	6

Average Wholesale Prices.—Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Anemones, doz. bun.	0	9 to 1	Marguerites, yellow, per doz. bun.	1	0 to 2
Azaleas, per bun.	1	0	Mignonette, per doz.	3	0
Bouvardias, per bun.	0	4	Narcissus, doz. bun.	1	0
Callas, per doz.	2	6	" Soleil d'Or, per doz.	3	0
Camellias, box	1	0	" Pheasant's Eye	2	0
Carnations, per bun.	1	0	Orchids, various, per doz.	3	0
Daffodils, bunch	2	6	" Odontoglossums	2	6
Eucharis, per doz.	1	6	" Cyrtipedium in-signé, per doz.	1	6
Ferns—Asparagus, bun.	1	0	Pe'argoniums, zonal, doz. bun.	4	0
French, doz. bunches	0	4	Roman Hyacinths, per bunch	0	6
Maidenhair, doz. bun.	4	0	Roses, Mermet, per doz.	3	0
Freesia, per doz.	1	6	" Various, per bun.	0	6
Gardenias, box of 18-24 blooms	4	0	" White	1	6
Lilac (French), bun.	1	6	" Pink	1	0
Lilium longiflorum, doz. blooms.	4	0	Smilax, per doz. trails	1	0
" lancifolium	1	6	Tulips, per bunch	0	6
" auratum	2	6	Violets, per doz. bun.	1	0
Lily of the Valley, per doz. bun.	6	0	" Parma	1	6
Mimosa (Acacia) per bun.	0	6			



TO CORRESPONDENTS

* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

STIMULANTS FOR PLANTS (F. J.).—You ask for a good stimulant or "refresher" for hardy border plants and Gladioli just starting into growth. The quickest in action is nitrate of soda; but if used alone and continuously the eventual results will be the reverse of satisfactory. Mix two parts superphosphate of lime and one part nitrate of soda, and apply at the rate of 3oz to the square yard. If you can obtain muriate of potash, use the same quantity as nitrate of soda, though it may not be essential, especially in strong soil.

WATERING VINES (D. H.).—The Vine roots being restricted to the brick pit water will be required frequently. It should be given after the Vines are in full leaf and have set the fruit, once a week—a thorough supply each time, a 4-gallon wateringpotful per square yard not being too much, and when the Grapes are swelling freely after setting and until the colour is changing it should be supplemented by a similar quantity of liquid manure, with good surface mulching. With good drainage this is not too much, but much depends upon the weather and the condition of the Vines. In bright weather the Vines will require water more frequently. After the Grapes change colour lessened supplies will be needed, and when ripening is advanced and completed it will suffice to keep the soil moist.

TOMATOES UNSATISFACTORY (W. F.).—There are no traces of disease in the top of the plant sent. In all probability you have "done" your Tomatoes too well. The 4in of fresh soil and 4oz of the proprietary manure per yard would have been ample for mixing with the top spit, and it is the quick action of the nitrogenous portion of the manure that has acted unfavourably. We have seen plants in a much worse plight than yours recover in a few weeks and produce extra heavy crops. When the soil is a little too rich, and in particular when either chemical manures or pulverised night soil have been rather freely used at the outset, the growth of plants is very sappy, and the leaves curl badly to the extent of quite giving them a diseased appearance. Not till they have grown out of this will cropping commence in good earnest. Your best plan will be to mulch with straw litter, and thereby obviate the necessity for watering so frequently during hot dry weather. Another surfacing of manure may be given, or liquid manure applied after the plants have set a good cluster or two of fruit, always provided the young leaves have ceased to curl badly. Be not chary in using fire heat, a good circulation of air brought about with the aid of this and top ventilation acting as a good preventive of fungoid diseases. An excess of either lime or copper prejudices the mixture. Is it not as easy to use the right as the wrong proportions?

VINES NOT BREAKING (J. B.).—We are unable to account for the canes not starting, assuming they have not been dressed with anything deleterious that has injured the buds. You give no particulars whereon we can found an opinion, neither as to the temperature of the house, position of the roots, or general treatment. You do not even say whether the old rods were cut out or not, and if not whether they are starting—the young canes alone refusing to break. Depress them, syringing twice or thrice a day according to the weather, and maintain a brisk temperature. It is, however, most difficult to answer with precision in the absence of information that is necessary for the purpose of a satisfactory reply.

TOP-DRESSING FOR ROSES (A. B.).—Dissolved bones and soot form a good manure. It is not advisable to mix the lime with them as proposed, but the lime alone would be a good addition to the soil. It should be applied fresh or newly slaked at the rate of a bushel per rod (30¼ square yards). It is best applied in March or in the autumn, but it may be given now and lightly pointed in. As a surface dressing you could not have anything better than dissolved bones, soot, and the artificial manure you name, using them in equal proportions. If you add half a part of sulphate of ammonia it would improve the mixture. A dressing early in May, about the middle of June, and towards the close of July would probably be sufficient, half a peck per rod being a proper dressing of the mixture. We are pleased to learn that we have been of some service to you in securing "fine Chrysanthemums up to the middle of December," and that the Tomatoes planted after them enabled you to "gather the first dish on March 29th." We congratulate you upon your well-merited success.



Glaucium luteum.

GLAUCIUM LUTEUM (F.).—This, the Horned Poppy, succeeds in any ordinary garden soil, seeds being scattered thinly upon the surface and lightly raked in. Do this early next month. *G. luteum* (or *flavum*, which is a synonym) is found wild on gravelly places by the sea in our own country, and grows 1 to 2ft. high. The leaves are deeply cut, and possess a beautiful silvery sheen, the form and character of plant beloved of artists, and it is often introduced into pictures. The individual flowers do not last long, but numbers are produced each day.

DESTROYING SLUGS (Inquirer).—In your case we should try the effects of lime water. Place a peck of lime in lumps fresh from the kiln in a tub holding 40galls or 50galls of water, stirring well; then allow the lime that is not taken up to settle at the bottom of the tub. If there is a light covering the water will be as strongly impregnated with lime as it can be. Apply it to wherever the slugs abound through the rose of a garden can precisely as if you were giving the ground a good watering after a dry day. Do this an hour or so after nightfall when the marauders are engaged in their foraging expeditions, and unless your slugs are of a harder kind than ours all will be killed that receive a good drenching. The lime water will do no harm to the soil or the plants. By a few nightly applications the enemy will, we think, soon be decimated.

PEACH WOOD NOT RIPENING (No Name).—We assume the trees grow luxuriantly, though you do not say so. You merely say the wood does not ripen, and there is a paucity of pollen, also that you train thinly. We once inspected some Peach trees in the charge of a gardener, and he undoubtedly considered the growths were disposed thinly over the trellis, but there were at least thrice the number of shoots that ought to have been retained. The result was immature wood, in which little nutriment could have been stored, small buds, and the year following not half a crop of fruit. If the shoots of your trees are so arranged that the leaves of one do not overlap those of the other the wood ought to ripen under good management. Perhaps the border is too rich, loose, and deep, also deficient in calcareous matter. If that is so, and the trees grow grossly, you will probably not find the topping and pinching process advantageous. It is desirable to know something about the nature of the growth and condition of the border for advising in a case of this kind; but the probability is that the root-action is excessive, in which case lifting the trees soon after the crop is gathered, and placing the roots in firm soil containing a liberal addition of lime rubbish, would result in improvement.

RATING MARKET GARDENS (W. P.).—The decision to which you refer will, we think, apply to general as well as to local rates, but for precise information you had better apply to a solicitor.

SMALL RHUBARB (J. F.).—In all probability larger stalks will follow as the season advances. If there are clusters of small crowns you may cut some of them clean out in order that the strength of the roots will be directed to the larger. It will probably be advisable to split a few of these from the outsides of the stools with roots attached, and plant them in rich soil. It may be done now, but no stalks should be pulled from them this season. Doyenné Boussoch is a fine-looking Pear, and good for a very short time only. When once ripe it "goes like magic." The trees may be inarched as you suggest.

BURNED BONES (J. H.).—By burning bones the organic or animal matter is consumed, and that undoubtedly possesses manurial value, but the phosphates remain, and these may be regarded as the chief constituents of bones. Burned beef bones have been found to contain in 100 parts, phosphate of lime and fluoride of calcium, 90.70; carbonate of lime, 2.16; carbonate of magnesia, 1.10; carbonate of soda, 5.74. This bone earth is thus decidedly valuable, especially for fruit trees, and applied to soil rich in animal matter would be practically equal to bonemeal, but to soil rich in phosphates and poor in animal matter, burned bones could not be of much service. It will be apparent, therefore, that the question of burning or not must be determined in accordance with the nature of your soil and the crops to which you desire to apply the manure. By breaking the bones moderately small they are more quickly dissolved by the acid.

CAMELLIAS WITH YELLOW FOLIAGE (W. H.).—The Camellias are not, we think, in good health. They are probably in a bad state at the roots. It would be desirable to examine the drainage, and if defective rectify it. At the same time examine the soil, and if not well occupied with healthy roots it would be desirable to remove it from amongst them and supply fresh. We use fresh turf loam of a light nature, cut about 2in thick and turned up roughly. In this we pot rather firmly. Good drainage is necessary, as the plants should not be more frequently disturbed than every third or fourth year. Failing the loam, Camellias thrive well in fibrous peat, small plants doing admirably in leaf soil alone with a free admixture of sand. With the roots in a healthy state the new growths will produce better foliage. If the roots are in good condition afford soot water, which will improve the growth and colour of the foliage.

THE SPRING NUMBER.—"W. S." writes: "I am late in sending you a congratulatory note on the excellence of your Spring Number, both letterpress and illustration being so good and varied. The notes on Westonbirt were most interesting reading, and the photos clearly indicate what a fine domain it is. We hear so much of Capt. Holford and his orchids, Amaryllis, &c., that you could scarcely have chosen a more popular text for your 'special.' Mr. Abbey's articles afford another instance of his wonderfully varied capacity."



Agricultural Literature.

"It never rains but it pours." We have had nothing very special to chronicle under our heading for some little time—just the ordinary weekly literature; but, at this moment, we have on our writing table three books, two of them large, entirely devoted to matters agricultural, and touching on every possible branch. The first is "Practice with Science," the yearly volume of the doings of "The Royal." The second is from Washington, U.S.A., the nineteenth annual report of the Bureau of Animal Industry, and the third is the Journal of the British Dairy Farmers. The matter contained in the "Royal" and in the American volume is new—that is, the papers (we believe) have not appeared in any other form. Respecting the British Dairy Farmers, the account of the French tour was published in most of the agricultural papers (at greater or less length) during the summer. Most of the papers, too, dwelt on the salient points of the October dairy exhibition in London, but besides these features there is much that is most excellent and instructive.

To begin with "The Royal." We do prefer one well-bound,

well-illustrated volume in place of the small quarterlies in paper backs. We have a book now that compares favourably with American books, and is really an ornament to a library. The old blue paper backs had either to be rebound or else relegated to a back shelf. We also think *facts* are so much better conveyed by the use of good engravings rather than by the best letterpress.

The volume opens with a portrait and short memoir of His Grace the sixth Duke of Richmond and Gordon, who was associated with the society as far back as June, 1838, when that society was only six weeks old.

In 1879 the Duke was chosen chairman of the Royal Commission on Agriculture. He was also deeply interested in the Administration of the Contagious Diseases (Animals) Act. He thoroughly re-organised the veterinary department, placing Sir George Brown at the head. In fact, in every subject that appertained to agriculture he took a lively and very active interest—an interest not confined to words, but manifested in deeds. Peace to his ashes.

There is one journal that often comes under our notice published in the northern capital of our island. That weekly devotes a considerable space to forestry; and wisely so, for we know of no estates into which woodland is not largely a component part. Indeed, on well-managed properties the woodland area provides some comfortable assets. We have in our mind just now one wise landlord who, instead of letting some moderate land at nominal rents, is gradually planting it up most scientifically. Possibly he will not reap much benefit during his lifetime (we hope he will, for he's a real good sort), but the heir will be materially enriched. We have lived in districts where forestry was practised as a fine art, and we thoroughly appreciate the paper by C. E. Curtis on "The Management and Planting of British Woodlands." The plates thoroughly illustrate the subject, and are beautiful in themselves, even if taken without the accompanying letterpress. This article is followed by one on the conversion of home-grown timber—a very suitable conjunction. To those of us who do not possess more timber than is to be found in the farm orchard these papers are most interesting. Who knows what we may possess some day?

Then follows a most exhaustive article on the manuring of grass lands at Rothamsted. That grass lands require manurial treatment other than what they receive from grazing stock is now a generally accepted fact; but, like many other facts, is more ignored than it should be. All the manures are saved for the arable except by those far-seeing men who know how to value and how to foster good grass. The writer has carefully tabulated the conclusions arrived at at Rothamsted, and for brevity and conciseness we cannot do better than quote him verbatim:—

"1. It is preferable to hay the same piece of land every year, using a suitable manure, than to graze and hay alternately, trusting to the food supplied to the stock for the manuring of the hay.

"2. Grass land, especially on light soils, is much benefited by an occasional dressing of farmyard manure—once every four or five years will be sufficient.

"3. The manure for hay should be mainly nitrogenous for pastures chiefly, potassic phosphatic manures being needed in both cases.

"4. An occasional liming will be of great value to restore the neutrality of the soil, and prevent the development of characteristic 'sourland' weeds like Sorrel. The lime will also bring into action manurial residues, potash in particular, that would be otherwise wasted.

"5. One-sided manuring with a single constituent of a plant food, however valuable at first, will, if persisted in, reduce the land to a very impoverished condition."

The Royal Society has had like experiments tried in various parts of the kingdom—the plots were of the poorest kind of pastures. In most cases the predominant grass was bent grass, or twitch (Yorkshire fog), and in many cases weeds predominated over pasture.

In most cases, says the article, the best effect was produced by basic slag, the exceptions being light sandy loam. Cheshire, sandy soil; Lincoln, stiff loam with limestone near the surface. Where the basic slag did not answer, lime produced improvement. Bonemeal was useless. Dung made the crop coarse. Basic slag, as a rule, increased the clover. Superphosphate in some places gave results equal to slag.

"Pastures that are on stiff soils, deficient in phosphoric acid and carbonate of lime, respond readily to fairly heavy dressings of basic slag, 6cwts to 10cwts per acre, and in a less degree to liming. The basic slag starts a free growth of white clover, and crowds out the weeds."

At Cockle Park, Northumberland, many experiments have been carried out since 1897 to demonstrate which are the best manures to increase the quantity and quality of hay from old meadow land. Time fails us to go fully into particulars, but the experiments were most exhaustive, and to most minds most convincing.

Mr. Hall, the writer of the papers, sums up in short paragraphs the principal features of the various experiments, and one or two of the remarks we will quote:—

"On poor land any large expenditure on manures will be wasted, the character of the herbage must be slowly reformed. A full manuring is only utilised where there are plenty of strong and vigorous grasses and clovers among the vegetation."

"For the production of hay. On strong loams, with a good mixed herbage, a dressing of 10 to 15 tons of farmyard manure should be given every fifth year. In other years a winter manuring (January, February) of 2cwt per acre of superphosphates, 3cwts kainit, with 1½cwt nitrate of soda when growth is starting. On old grass land an occasional dressing of ground lime ½ ton per acre applied in early winter the year after the application of dung will do good. On strong clays substitute 3cwt or 4cwt basic slag for superphosphate, and reduce or omit kainit. On light sandy soils first use dung, and feed on with cake until the herbage is vigorous. Then apply 1cwt nitrate of soda, 1cwt superphosphate, 3cwt. kainit. On poor clay land begin with 10cwt basic slag per acre.

"For poor pastures on strong soils use first year 10cwts basic slag, nothing for two years, then dress every other year with 5cwts basic slag. Sandy clays may need 3cwt of kainit. On good pastures 3cwt of superphosphate; 3cwt kainit per acre will increase the feeding value. Here, too, cake feeding has its maximum effect. Pastures on light soils want potash (kainit, 3cwts). Here basic slag shows no result. Nitrogen is required, and 1cwt nitrate of soda in spring will be repaid." We wanted to treat on various diseases, both of stock and crops that are found in this number, of some of the new implements, of weeds and poisonous plants, and so on, but time fails. We must, however, just refer to some pictures representing Apples trees—shall we say very much like the ears of corn seen by Pharaoh in his dream? some fine and promising, others weak, fruitless, and altogether poor. The same varieties of tree planted at the same time, but differently treated; one class kept clear of grass at the root, the other smothered in grass. These experimental trees have been grown on the Duke of Bedford's fruit farm at Woburn, and the last nine years shows conclusive proof that no better way exists of dwarfing and stimulating trees than by allowing them to become grown round with grass. In how many orchards that we know is sufficient care taken to keep the ground round young trees carefully cleaned? We do it a year or two, and then it is forgotten or put off to a more convenient season, and still all the time we are expecting good fruit returns, or are inclined to blame the nurseryman for sending us poor, useless stuff, when the fault is all our own.

Work on the Home Farm.

Notwithstanding occasional cold showers, the weather is now more spring-like, and, although the tilth is not all we could wish, yet fair progress is being made with spring sowing. Oats are going in well, but we should like to see a little dust behind the barley drill. That a peck of March dust is worth a king's ransom must have been very well illustrated this year, for it has been as scarce on the farms as gold has been in the purse.

Although we are able to sow under fair conditions, it is not so everywhere. We yesterday attended a sale in a high, cold district, and during a 20-mile journey saw hardly a sown field except during the first two or three miles. Ploughing turnip land appeared to be the chief occupation, and very sticky the land appeared to be. We saw very little wheat, and what there was appeared backward and patchy. We said lately that the wheat crop would be the smallest on record, and everything we have seen since bears out the correctness of that opinion.

We have dragged over our prospective mangold patch with the spring tooth cultivator, and pulled out sundry pieces of fat twitch. This we shall get off as soon as possible, and leave the land as it is until we ridge and manure it in about three weeks' time. Having somewhat failed in our attempts at mangold-growing, we naturally take extra care this year to ensure a plant.

This is the time for drilling spring cabbage, but the land is not dry enough, and a week later will do. Autumn cabbages have stood the winter well, where hares and rabbits have allowed them to do so, and they are ready for horse-hoeing and cleaning. They are healthy but rather backward, and will not be ready for use until late in July. We shall give them a dressing of 6 to 8 cwt. per acre of household soot. We have tried other artificials, but have found nothing to beat that for cabbages. We are sowing our small seeds after the drill. By waiting until the barley is up we should risk our clover plant, which we prefer to make a certainty of.

The lambing is nearly over, and is satisfactory. Good lamb is scarce, and makes a good price; but ewes with strong singles are not so dear as they were, whilst we have seen useful pairs sold for 60s for the three lives. They must be a good investment, with such a good prospect for summer keep. Entire horses are commencing their rounds. No foals here yet.

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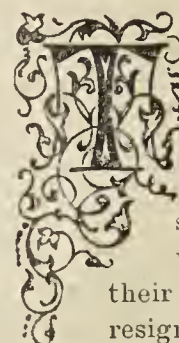
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Journal of Horticulture.

THURSDAY, APRIL 14, 1904.

Glass Structures.



HERE is an old, well-worn aphorism, which everyone has heard upon more or less frequent occasions, to the effect that "people who live in glass houses shouldn't throw stones." Gardeners who spend a considerable portion of

their existence under glass will have long resigned themselves to the wisdom of this taken literally; metaphorically, however, they may not be so willing to submit Their livelihood and reputation to no small extent depend on the nature and efficiency of the structures provided them for supplying the wants and expectations of employers; and considering the difficulties they at times encounter and the drawbacks under which some of them labour, it is scarcely to be wondered at if they do occasionally feel under the necessity of hurling indiscriminately abroad, notes of grumbling and verbal dissatisfaction.

Admitting unreservedly the vast improvements that have been effected in the designing and erection of plant and fruit houses during the past quarter of a century, we feel we are not alone in our opinion when we assert that the imperfections known to still exist in this connection are even now not few in number, and are in some cases almost outrageous. The worst and most numerous examples are without doubt to be found in private establishments.

Your thoroughgoing market man is too much alive to the exigencies of the situation to make grave mistakes in planning his houses as to their suitability for the occupants; nor will he neglect such labour-saving adjuncts as tanks, taps, and hose. His fabric may be rough as to material, built on cheap lines probably, and altogether lacking in ornate embellishment; but for its intended purpose it will, so far as is possible to make it, be efficient.

In these latter years lack of capital or reduction of income have been the predisposing causes of inability to keep pace with the times in a number of instances. This is a matter for regret

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rather than serious deprecation, and we should not for one moment formulate charges against such cases as these. Nor can there be any sound basis for arguing that there is anywhere shown a disposition to adhere to the heavily timbered and badly lighted houses of bygone days.

Of what, then, do we complain? Who is to blame? It is to be feared that neither employer nor gardener is free from censure; but our judgment is not needed in this matter, readers will readily decide for themselves; though we may doubt if the growing tendency of the former to build without consulting his trained employé will help very far upon the way of improvement.

Take an illustration from the following. A huge conservatory was erected about three years ago by an extremely wealthy man. Built in the shadow of lofty trees, nothing was lacking in materials to give this house a lasting existence. But owing to its shaded position, scarcely any plants will grow in it, and such as do, quickly lose their lower leaves and become drawn and unsightly. With such a structure as this to furnish and adorn, it were only natural to expect the gardener to be provided with a suitable complement of plant houses, yet what do we find? One or two antiquated vineries and a cool Peach house. As a consequence, through no fault on the part of the gardener, this great conservatory looks well at one period only of the year, when *Chrysanthemums* are at their best.

Take another instance. A retired business man, reputedly of great wealth, would build himself a range of large fruit houses. They were built in approved modern style, and it must be admitted, for their original purpose were well equipped. No sooner were they completed and the majority planted, when a wish was expressed for them to be used as plant-houses. This capricious decision has caused unpleasantness and misery to more than one or two gardeners, and not many years have these houses been in existence.

There is, of course, another phase of this question, and though we fain would deal gently here, there is no gainsaying that gardeners themselves are not infrequently deserving of blame for mistakes in erection, in choice of site, in heating arrangements, and the consideration as to the best means of water supply. Where a man is given a free hand there should be no errors such as the above, though doubtless through a mere want of foresight and thoughtfulness they exist, and will continue to exist so long as young men, and even those of greater experience, are content to pass their days under glass, without a due meed of careful observation as to the merits or defects of the houses in which they labour. Too many are content to take a situation as it stands, without troubling themselves as to the reason why results are good or bad, as the case may be.

We will suppose for a moment that a batch of plants is not thriving in a certain house so well as could be desired. A change to fresh quarters is decided upon, and at once there is a distinct improvement in general appearance and rate of progress. The youthful aspirant to horticultural honours who notices such a change should at once become the possessor of an absorbing desire to know why, and when satisfied as to the reasons, should with equal readiness make careful notes for future reference. In this manner both young and old may store a mine of useful information for the time to come.

While admitting the great improvements that have taken place, we venture to say in conclusion that horticultural building still falls considerably short of perfection, and it is the duty of every gardener to note carefully defects as well as good points, so that he may be prepared to avoid failures as far as possible on the one hand, and to take every conceivable advantage on the other.

Coreopsis grandiflora.

Perhaps the best of the *Coreopsis* in some respects, this is not the most perennial of the genus in cultivation, and it will be well not to trust to its remaining long in our gardens. It was introduced as a perennial, and it seems to be so on some soils. It is possible that there may be two plants, but I do not think so, and I find on referring to the authoritative work on American flora by Messrs. Britten and Brown, that they say "perennial (or sometimes annual?)," a remark which fairly well agrees with one's own experience, although one would prefer to reverse it and say "generally annual or biennial, but sometimes perennial." Even with this somewhat unsatisfactory character, *Coreopsis grandiflora* is a most desirable plant, either for the ornament of the garden or for cutting for the house. Its large yellow flowers and the graceful foliage are delightful in the border, while in a cut state they are capable of the most elegant arrangement. *C. grandiflora* should be propagated by seeds, which may be sown either in the open in April or early in May, or under glass in March. The plant grows from 1ft to 3ft high, according to the soil. It is naturally a lover of moist soils at home.—S. ARNOTT.

Herbaceous Pæonies.

Pæonies of one kind or another are familiar almost to everyone, being represented in small as well as large gardens. In cottage gardens the one most frequently met with is the old officinalis in some of its varieties, the double crimson being perhaps the most common. Then we have the tree Pæony in many beautiful varieties, which is so useful either for growing in pots or planted in the open. The one of which we wish to write, however, is *P. albiflora*, the varieties of which flower about a month later than officinalis. It is one of the most popular flowers now grown, and may be cultivated by all. For although new, and the more choice varieties are very expensive, there are many that may be purchased at low prices and good sorts too.

There are now so many varieties to select from (the tints of some being very beautiful) that it is difficult to give a list of the best sorts. Moreover, the flowers of some varieties are fragrant. I have heard some complain that the flowering season is so short that they prefer to grow other things. The same point might be raised against other flowers. By a suitable collection of early and late flowering varieties they may be had in bloom for almost a month. The Pæony is a very accommodating plant, as it may be grown in a variety of situations. It looks equally well planted in bold masses in front of the shrubbery, or in beds by itself. On the mixed herbaceous border, or as isolated specimens on the lawn or under Rose arches, it is seen to advantage.

In the advertisement columns of the gardening periodicals may often be noticed that now they can be planted. There is, however, a right and a wrong time to plant; and to obtain the best result the Pæony should be planted, where possible, at the proper time. No doubt this is in the early autumn, as soon as growth is completed. Those who would succeed with these flowers must treat them liberally, to which they will respond very freely. The situations in which it is intended to plant must be well prepared by trenching, at least two spades deep, as the roots go deep in a suitable medium. A quantity of good rotten manure must be well incorporated with the soil. In very light soils, good strong loam may be added, and manure of a heavier nature used, as it is useless to attempt to grow them in a poor soil.

The Pæony is somewhat long in establishing itself, taking at least two or three years before making much of a show. There is, however, the satisfaction of seeing it improve year by year, until it develops into a fine specimen. When the ground has been properly prepared in the first place, the after treatment is quite simple. When well established it will be necessary to give an annual mulching of good rotten manure in the early winter. A good way of doing this is to carefully remove the soil from around the plants, not laying bare the tubers, lay on the manure, and then return the soil. This will prevent birds or other things disturbing or scratching it away from the plants. In hot, dry weather a second mulching may be given, which will greatly assist the plants in producing fine blooms. Where time can be spared a good watering occasionally will also prove beneficial.

Staking must have attention before the growths fall about. Many have a great dislike to this being done, not only with Pæonies, but other plants. It may, however, be done in such a manner that the stakes are scarcely visible a few days after being inserted. With single specimens three or five stakes put in round the plants, the tops of which should fall away from them somewhat. Then if a string is run round near the top of the stakes, the foliage will soon hide them, and the plants will develop into well-shaped specimens.

In the case of beds, or groups amongst shrubs staking may not be so necessary. A good sized plant will produce three or four dozen blooms. If extra sized ones are required, the lateral buds may be removed, and some of the weak stems cut out. The Pæony is said to be perfectly hardy, but it is not in the north of England. Our plants were sadly crippled with the cold, dry winds and frost last spring, the growth of many being bent double. On one or two varieties the tips of the shoots were killed, and the plants did not flower. Indeed, none bloomed so well as they usually do.

We must remember, however, that it was an exceptionally unfavourable spring, but our plants are always more or less injured during severe weather. I would not advise coddling the plants, but a slight protection should be given. This may best be done by sticking firmly in the ground branches of common Laurel on the north and east sides of the plants. It is essential that whatever kind of protection is given, it should be made quite secure. A great amount of injury is often done to plants by the material that is used to protect them, especially during very windy weather. When the flowering period is over, the stems should be carefully cut away, taking care not to injure the foliage. The plants are attractive even when the flowers are past, on account of their foliage. In the autumn the leaves of some varieties change into a variety of beautiful colours, and are useful for cutting for house decoration.—J. S. U.



Dendrobium thyrsiflorum at Rothesay.

Mr. J. Lornie, The Gardens, South Park, Rothesay, N.B., sent us the photograph which we reproduce on this page, together with a four-flowered spike of *Cypripedium* x *Rothschidianum*, but the latter, unfortunately, is too dark to print from. It shows a very healthy fine plant, however, with exceptionally handsome flowers. Mr. Lornie informs us that he has grown both the *Dendrobium* and the *Cypripediums* "from tiny scraps," which speaks well for both the air of Rothesay and the gardener's skill.

Cultural Notes.

There will be many species that require repotting during this month and next, as so many plants push new roots freely at this time of year, while the fact of the best of the growing season being in front of them has also to be considered. The *Promenæas* are pretty little plants, that like a sweet, open compost, and in consequence must be top-dressed or repotted every season. They are basket Orchids, thriving well in the cool end of the *Cattleya* house or with the *Chimæra* section of *Masdevallias*. If a little really good loam of a fibry, silky nature is at hand, it may be added in the proportion of one to four of the ordinary compost, but only the best must be used.

Loam is an excellent addition, too, to the compost for the sweetly scented and beautiful *Maxillaria grandiflora*, an Orchid sadly neglected by the present day grower, but one of the most charming of cool house, easily grown kinds. Later plants of *Lycaste Skinneri*, *L. lanipes*, *L. Barrintoniæ*, *Maxillaria Sanderiana*, and others of this section should be on the bench at the same time as those above, as all need much the same mixture. None of them should be raised much above the rims of the pots, and as all need very free supplies of moisture, the drainage should be free and open.

Although in many cases the flowers of *Sophronis grandiflora* would last considerably longer, it is not advisable to allow them to. They will last almost as long when cut and placed in water, and this will free the plants for attention to the compost. These should not be disturbed oftener than absolutely necessary, as the roots are not vigorous or very freely produced. As a rule, once in four years is often enough to shake them out, a little re-arrangement of the growths and careful top-dressing sufficing in the intervening years.

One point in top-dressing is often overlooked; that is the supply of pieces of crocks with the new compost in place of those removed with the old. Unless these are provided, each year adds to the thickness of compressible water-holding material, and the plants do not dry rapidly at the roots as they should do. I saw a nice batch of *Oncidium ampliatum* during the week, imported plants that had not since their advent to the Orchid house had any compost until a week or two back, and the fine growth they are making proves how little compost is really necessary for this fine plant. Many specimens are, I am sure, first weakened by being allowed to flower before becoming established, and then the roots are smothered in unnecessary compost. —H. R. R.

Diacrium bicornutum.

The "Orchid Review" for April figures this beautiful plant, and furnishes the following notes: "The annexed illustration represents a very fine specimen of *Diacrium bicornutum* which flowered at Kew some time ago, and was photographed by Mr. Griessen, who was then in charge of the orchid houses. It is certainly a well-grown example, producing a dozen spikes of flower. The plant has sometimes the character of being difficult to keep, but this chiefly arises from growing it under unsuitable conditions. The habitat of the species indicates a high temperature and a moist atmosphere, and under these conditions it is very successfully grown at Kew. Teak baskets seem to be most convenient receptacles, and a mixture of fibrous peat and sphagnum moss forms a suitable compost. The climatal conditions, however, seem the most important, and warm house treatment is essential to success. The species has been known for about seventy years, having been originally described and figured in 1834, under the name of *Epidendrum bicornutum* (*Hook. Bot. Mag.*, t. 3332), from a plant which flowered in the collection of Earl Fitzwilliam, at Wentworth, in April of that year. It had been introduced by Messrs. Shepherd, of Liverpool, from Trinidad, a locality from whence it has since been frequently imported, and where it is said to grow on rocks on

small islets so close to the sea that they must often be bathed with salt spray. Afterwards it was found by Sir Robert Schomburgk, in Demerara, growing on the trunks of trees by the River Berbice. It has also been found on the Essequibo and Corentyne Rivers, as well as on the Kwaimatta Savannah, in Guiana, and on the Island of Tobago. It is one of a few species having hollow pseudo-bulbs, which are tenanted by small ants, which find ingress through a small cleft at the base, that invariably occurs in the new growths. It is a very beautiful species when well grown."

Vanda Amesiana.

When in flower the general aspect of this species may be likened to a *Phalænopsis*, and it blossoms at various seasons. The plant itself is dwarf, with stiff, fleshy, dark green leaves 1ft long. The fragrant flowers are in erect racemes of 20 to 50; the sepals and petals are white, flushed with rose, and the lip is rich magenta-rose, except on the margin, which is paler, and their size is 1½in to 2in in diameter. It thrives under similar treatment to *V. cærulea*.

Orchids in the Sale Rooms.

Messrs. Protheroe and Morris sold 950 lots of orchids at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on Friday last. Some of the prices realised were as follows: For a beautifully spotted *Odontoglossum crispum*, 55gns; *O.c. punctatum*, 14gns; *Cypripedium* x *J. H. Veitch* (*Curtisi* x *Stonei platyclinum*), a strong plant, 40gns; *Lycaste Skinneri alba*, £2 7s. 6d.



Dendrobium thyrsiflorum.

C. Thompsoni inversum, £3 15s.; *C. insigne* Harefield Hall variety, with two growths, 4gns; *C. insigne* Sanderæ, two growths, £4. For twenty small, unflowered *Odontoglossum crispum* only 11s. were obtained, and this was the highest bid out of a number of lots of equal number. Plants of *Calanthe Regnieri*, with one strong bulb and one to two breaks, fetched 4s.; *Phalænopsis Reimstadiana*, established plants in 6in pots, brought 6s. each; *Lælia cinnabarina*, in flower, 7s.; and *Oncidium concolor*, with two to three spikes, 5s.

Sale of Orchids at Manchester.

Lovers of orchids were much interested in the sale by auction of the Warrenhurst collection by Mr. John Cowan of Liverpool, in the Grosvenor Hotel on April 6, when, amongst others, the following prices were realised:—*Cypripedium insigne*, Harefield Hall variety, 15gns; *Cypripedium Lawrenceanum* Hyeum, 29gns; *Cypripedium callosum* Sanderæ, 14gns; *Odontoglossum crispum*, fine variety in flower, 20gns; *Odontoglossum crispum guttatum xanthoglossum*, 18gns; *Odontoglossum Adrianæ*, 9gns; *Cattleya Mantini inversa*, 15gns; and a grand specimen of *Cælogyne pandurata*, which produces green and black flowers, realised 20gns. The general prices were good, and showed that the interest in these lovely plants is without doubt increasing.



Work among the Roses.

Much gardening has been done during the past weeks, for the dry, bracing air by day and crisp night frosts have done much to dry the soil and render tillage operations pleasant and enjoyable. If such favourable climatic conditions continue—and everyone must fervently hope they will—work which has throughout the winter fallen in arrear will soon be brought up to time.

Among other matters, Roses will just now be claiming a large share of attention. The growth on the shoots is not so forward as it was at this date last year (March 21), and the next fortnight should be a suitable time to prune Hybrid Perpetuals and other hardy kinds. I doubt not that many plants in sheltered positions or warm districts were pruned some time ago, and where very early Roses are specially desired it is perhaps worth taking some risks to secure them; but the treacherous weather of last year should have taught us that it is better to be a little late rather than too early in pruning standards and bushes in open quarters. The early pruners suffered badly last year; the late pruners as a rule secured good results.

When dealing with standards and bushes, hard pruning should as a rule be practised, but there are exceptions which have to be considered; for instance, those two fine varieties, La France and Baroness Rothschild, each produced plenty of vigorous young wood, and with but little pruning beyond cutting away old shoots and slightly shortening young ones, grand flowers may be obtained if disbudding is practised; on the other hand, equally good flowers may be obtained by hard pruning these two varieties if they are root-pruned or lifted entirely and replanted whenever they show a tendency to grow too strongly. When bushes are grown in beds it is generally desirable to keep them dwarf, and they must then necessarily be cut hard back unless the shoots are pegged.

A plan that I find answers admirably is to cut weak-growing varieties to within two buds of their base, moderate growers to three, and very strong ones to four or six. After shoots have been cut hard back for a few years, some of them will inevitably show signs of weakness, and, if retained, will only send out weak growths. Such should be cut away entirely, and there are usually strong shoots springing up from other parts of the bush to take their place. These only need shortening sufficiently to bring them to about the same height as the older shoots, for if they are cut back very hard, they will generally send out extra strong growths at the expense of the other parts of the bush.

Standards should be pruned on similar lines, with the exception that a constant outlook should be kept for shoots springing from near the base of the main branches, and where they do occur their extension should be encouraged by removing some of the older wood to make room for them. In this way the main branches are kept from becoming bare at the base, and the dimensions of the head are also confined within due bounds.

Strong growing climbing Roses of the Crimson Rambler type should have the old wood cut entirely away each year, and the young wood trained in from 6in to 9in apart. Under this system the panicles of flowers produced are often 15in in length, and it is no uncommon occurrence to get strong shoots from 12ft to 15ft in length in one season. Plants so treated, when in flower, present a bold and much more showy appearance than those in which a great deal of old wood is left, which gives a crowded appearance. Gloire de Dijon and Madame Berard also succeed splendidly under a similar system of pruning.

Other types of climbers, which are not quite so vigorous, give good results if the main branches are "spurred" for two or three feet, then cut away entirely to make room for strong young shoots, which, in the case of plants liberally treated, will be freely produced. The great thing to avoid is having the space entirely covered with old wood, and no young material coming on to take its place, for under such circumstances the ultimate result is stunted and unsatisfactory growth.

The second or third week in April is early enough to prune dwarf Teas, climbers on walls a week or two earlier. When dealing with the dwarfs, first cut away all weak shoots entirely, as they will never give good flowers, then shorten the shoots retained to from two to six buds of their base. Some cultivators recommend Teas to be much more lightly pruned than H.P.'s, but I have always found that if good flowers are required hard pruning should be resorted to. Those who want to establish large bushes quickly must necessarily leave more wood after the

first year of severe shortening; plenty of flowers of moderate size are then generally produced.

Moss Roses differ a great deal in regard to their vigour of growth. Those which grow weakly should be hard pruned; the strong growing ones only need to have the shoots thinned and slightly shortened, they will then yield hosts of fine shapely buds, which are far more attractive in appearance when of moderate size than when forced by hard pruning into exceptional vigour.

After Roses of various types have been pruned and the beds cleaned, it is an excellent plan to dress the surface of the soil with some chemical manure. I find the following mixture excellent for the purpose: Equal parts superphosphate and kainit, applied at the rate of 6oz per square yard, and hoed or lightly forked in. Such a dressing secures the production of short-jointed, firm wood instead of strong sappy growth, which has been too common during the last two years, when dung only has been used.—H. D.

Tropical Plants.

(Continued from page 181.)

COMPOSTS.—The soil in which, with but few exceptions, tropical (or stove) plants delight is an equal mixture of loam and peat. Both of these constituents should be of a fibry, tenacious character, for a flimsy, crumbling compound will in most cases soon resolve itself into a sour pasty mass, inimical to healthy root action. Chopping the sods of both peat and loam a few times across with a hatchet facilitates the breaking up by hand into lumps the size of an egg, larger or smaller according to the pots about to be used, and all dusty material should be discarded. This soil should be in that happy condition of neither wet nor dry, and then forms the backbone of our potting material. A 10in potful of small charcoal and a 6in potful of Clay's fertiliser, with a liberal addition of coarse sand (we use sea sand for preference, containing a large percentage of small shelly matter) to the barrowload, is an ideal compost for the bulk of the plants under notice. For Caladiums, Alocasias, Anthuriums, and Nepenthes, some well-picked sphagnum lightly chopped may be added with distinct advantage.

POTTING.—As with the soil, so with the plants. Respecting moisture, they should be neither wet nor dry, but in that comfortable condition that will not necessitate water for a couple of days after potting. There is a time for potting a particular plant, which is *the* time, and that may be now or a month hence. Overpotting is an evil to be avoided, even where large specimens are required. It is a matter of surprise to many how some gardeners contrive to rear fine healthy specimens, particularly Palms, in small pots—pots so small as to appear out of all proportion to the size of the plant. There is always the temptation besetting the young plantsman to pot on and pot on whenever the roots have touched their boundary, and they seem to dread their pets getting potbound. This condition (when the roots feel the pot), however, appears to be distinctly advantageous to the wellbeing of many plants; there is a something—I do not know what—but possibly a certain amount of root aëration which they enjoy in contact with the pot. We may, however, summarily dispose of this phase of the question in saying that, as a rule, more plants are overpotted than underpotted. Firm potting is strongly advised, and the potting sticks, of which there should always be different sizes at hand on the potting bench, should be consistently used.

DOCTORING.—In dealing with plants which from any cause are unhealthy, and there are sufficient reasons for retaining them, although in some cases throwing them out is better than doctoring, drastic measures are often the best—in fact, killing or curing gives the quickest satisfaction. We do not like to keep even one sick or shabby plant in our stove collection, and take prompt measures to avoid it. With specimen Crotons, for instance, which are bared by the loss of bottom leaves, a hard cutting back is the best remedy, all but withholding water until the new buds, which are quickly formed, are starting into active growth. The plants should then be shaken out, in bad cases washing the roots free of all old soil and trimming back the "tlongs," and after a few hours' rest to dry them, pot into a size just able to take the roots, and if practicable, give a fresh and rapid start into new life by plunging in the hotbed. After a few weeks of this hospital treatment plants thus treated will be convalescent, ready for potting on and placing in their permanent quarters.

WATERING.—Old heads find a certain amount of difficulty in training young hands to the right use of the waterpot. In broaching this matter, how vividly the sins of one's youth crop up! Sins which, in spite of juvenile enthusiasm, were per-

petuated under easy masters, until the climax came with one who would tolerate no laxity in this respect. As but yesterday comes back the picture of a careless hand and a sharp eye, with the stern query, "Was that plant dry?" "Not very dry, sir." "Well, if a plant is dry, water it, and water it properly. If not, don't. And, mind, no slip-slopping for me!" That was a sharp rebuke from a stern master but expert plantsman, and the tone in which it was given left no doubt of its being administered for once and for all.

To repeat that lesson learned in early life should be sufficient, and one need but add that the young fellow in charge of a house of plants knows intuitively, if he brings inspiration into his work, the plants which require water daily, twice daily, or twice a week, as the case may be, and in that intuitive knowledge and its constant application to all phases of plant culture lays the dividing line between excellence and mediocrity. Where any doubt exists as to dryness, ring the pot as per usual, and if the shadow of that doubt remains, lift the plant and test it by weight; but, as remarked, there is an intuitive knowledge incomparably beyond all orthodox rules which marks the master hand of a plantsman, who lives in communion, as it were, with these subjects of silent life.

FIRING.—"Ah! That's where the expense comes in." This the remark recently made by a gentleman interested in our subject. It is so, and no amount of logical enthusiasm can lessen the debit side of annual expenses. All the more reason, then, that the plant grower should make every endeavour to show a good balance to credit in his plant stock. The question of boilers or of fuel need not be gone into here, but a few nice points connected with stoking cannot be ignored. It does not matter how much fuel is burned, or what the cost of it is, if the stoker can conscientiously say that not one pound of it has been wasted—needlessly consumed. This, however, cannot be if a quick, clear draught does not obtain, for without that, waste all round of fuel, and time, and temper is sure to exist; but given a vitality of draught, scrupulous care should be taken to have all flues thoroughly and periodically cleaned, for every ounce of soot about the boiler is a robber.

No matter which boiler is used or what fuel is employed, bad construction, giving defective draught, is an evil of the first magnitude, and should be promptly remedied. When the mere act of pulling out the damper and opening the ashpit door causes a cheerful singing to ascend from below, one may know there is happiness in that boiler to all concerned, with comfort, cleanliness, and economy; but when the "kid," black as Erebus, gallops about with the stoking irons in that state of torment suggestive of an early purgatory, he is to be pitied and responsible heads blamed.

TEMPERATURES.—We find no parallel in Nature to those hard and fast conditions some heads lay down for the guidance of young hands. At the same time, there are, of course, limits which may not be infringed with impunity. High winter temperatures for tropical plants are an unnecessary evil. Under our artificial conditions of culture, the nearer we inculcate our plants to two seasons, one of growth and one of rest, the better for them and for us. In dividing the year into these two seasons, the winter one of rest may, roughly, begin with October and end with the advent of March. This gives seven months of active growth, or near that, for some margin must be allowed in the autumn for consolidation and hardening preparatory to a good rest. Here it must be remarked that insufficient piping is not only as bad an evil as defective draught to a boiler, but one that should have insistence on its being rectified. Summer temperatures are of primary importance, and the cheapest to obtain, but a cold, chilling spring may necessitate a little more fire heat than many, who, in seeking relief after their unwise hard winter firing, care to employ.

Yet even now there need be no stickling for high night temperatures under adverse conditions prevailing outside. Judicious opening and early closing of the tropical house, with a starting on of the fire at the latter, will give a genial, growing atmosphere of, say, from 80deg to 90deg, lasting well into the night; and should this occasionally fall by morning as low as 55deg to 60deg, there need be no anxiety, nor with anticipated sunshine, any perfervid desire to flare away fuel in the morning, for often by the time the pipes are heated it is a positive harm, necessitating a rush to the ventilators to let escape what has been both trouble and expense to put in.

Sun heat we want during the growing season. Fire heat is a necessary evil, but, with a deficiency of the former it is necessary, and that will not be wisely ignored. In hard winter weather during the resting season, the plantsman need not be troubled if his night temperature does not fall below 50deg, nor need he strain the boiler to obtain more than a rise of 10deg over that by day. But all these things are to more or less extent contingent on outside conditions, which, if duly recognised, give practicable working results infinitely preferable to all the hard and fast rules our old masters laid down when we (old heads of to-day) were boys together.—A. N. OLDHEAD.

Book Notice.

"Flora and Sylva."

It is satisfactory to be able to report the continued success of this high-class monthly review, which completed its first volume last year. That volume was a masterpiece in its detailed finish. Matter, arrangement, type, paper, engravings, coloured plates, and the white leather binding combined to make the book one of the finest that has been published within recent years. Since receiving the bound volume, the parts for March and April have come to hand, and they continue to uphold the reputation and dignity of the publication. The price per part is 1s. (monthly), and the marvel is that they are procurable at this figure.

The March number contains articles on the following: The pitcher plants,* the garden beautiful; *Tridax gaillardoides*



Vanda Amesiana. (See page 313).

(with coloured plate), the tree Savin; the violet Willow; greater trees of the northern forest; the Sassafras tree; Rose Papa Lambert*; the Almond*, the Hepaticas, *Magnolia parviflora* (with coloured plate), the Witch-Hazels; landscape and woodland pictures by the master painters*; riverside colour at Straffan; the spring Star-flower, and experiments with introduced trees.

The contents for April are: Waste in planting; hedges and shelters of Holly; greater trees of the northern forest: the big tree*; spring-flowering Crocuses (with coloured plate); the pitcher plants; the Australian Fuchsias*; underwoods and game; the Glory of the Snow*; *Lycaste Mary Gratrix* (with coloured plate); the Brooms of the *Cytisus* group*; the lesser Periwinkle; landscape and woodland pictures by the master painters,* and trees and the weather. The asterisks refer to engravings. The publishing offices are at 17, Fumival Street, London, E.C.

Register of Nurseries, Market Gardens, &c.

Messrs. Protheroe and Morris, Horticultural and General Auctioneers, &c., 67 and 68, Cheapside, London, E.C., have again issued their quarterly register of nurseries, market gardens, farms, florists' seed businesses, and partnerships to be let or sold. This can be had on application.



Chrysanthemum, Mrs. Filkins.

This thread-petalled or spidery variety of Chrysanthemum like the "old, old story" is yet "ever new." It furnishes a fine decorative subject, and is easily grown. The flowers are of Japanese form, medium-sized, with florets prettily cut and notched, and coloured bright golden yellow. We believe we are correct in saying that Messrs. Cannell and Sons, of Swanley, have the largest number of varieties in this section, and they have at all events raised and introduced a number of very pretty kinds. Cannell's Favourite, for instance, is a true white Mrs. Filkins; and there are others, such as Golden Thread, Sam Caswell, Silk Twist, Lady Onslow, and King of Pines.

In Australia.

Mr. W. Wells, of Earlswood, sends us a letter from Mr. Thos. Pockett, Melbourne, Australia, with permission to make the following extracts:—"Not much Mum news yet, but we are all pretty busy with the plants now. Caterpillars have been very bad, and there has been really too much rain—more than has ever been known here, so perhaps it is as well I have so many to pick from. I have nice-looking buds on a lot of seedlings, and the numbered varieties that I told you are good doers still remain so, and many of them have now good buds and the stout flower stem. The batch intended to save seed from is looking grand: it is just as well the bed is thoroughly drained! Carrie, Goacher's Crimson, Crimson Marie Masse, and Lady Fitzwigram are flowering nicely, but a few plants of each that I put in public gardens on light sandy soil are a failure—they have flowered themselves to death. Many of my plants in pots are not looking well, having too much rain, but I have two large beds of all the numbered varieties that can be covered with calico, and they are looking well. An odd bud or two will soon be showing colour.—THOS. POCKETT."

We have also received a copy of the "Melbourne Argus" containing some extracts from Mr. Molyneux's Chrysanthemum Analysis, published in our columns on December 31 last year. The same article contains particulars of Australian Chrysanthemums and growers, particularly of Mr. Pockett and his work, a few of which are interesting to those of us here in the Motherland.

"Australia," says the "Argus," "is the youngest of the competitors in this international contest of skill in cross-breeding, and has thirteen to her credit, and of these Victoria contributes eleven, chiefly owing to Mr. Thomas Pockett, the curator of the Malvern Public Gardens. He carries the banner with nine, one of which, W. R. Church, is the champion flower of the fifty this year, as it was also last year. This bloom was the only one in the group which received the unique distinction of a vote and unstinted praise from every one of the forty selectors, and can, therefore, claim to be at the present time, on the highest authority, the finest Chrysanthemum in cultivation. In regard to the rest of the Australian varieties which won a place, Messrs. Brunning and Son, of St. Kilda, raised two, and New South Wales the other two. France contributed eleven, and Great Britain and America the rest. What strikes the imagination in this notable triumph is the modesty of the man who, in a little cottage garden at Malvern, delving away with his spade on Saturday afternoons and the fag ends of time which can be snatched from his duties as curator of the public gardens, has been enabled to win for himself, without any parade, a position in the aristocracy of talent which has made his name honoured and respected wherever flower lovers assemble, and that is practically the world over. 'The Australasian,' in its pictorial columns, has a snapshot of Mr. Pockett at work amongst his floral favourites. He has 4,000 new seedlings this year, and is striving hard to keep up the renown he has won. It is no mere luck, but painstaking care in skilful hybridising, continued over a long series of years, which has enabled Mr. Pockett to achieve such success.

"Mr. Edwin Molyneux, in his notes on the results of the selection, has this to say: 'As in last year W. R. Church heads the list with a full number of votes, showing what exhibitors think of this variety, which is a distinct compliment to our Australian friends.' In a chat while at his work, Mr. Pockett had something interesting to say about his flowers. There is no lack of energy on the part of raisers of novelties, he remarked. Each and all are striving to excel, as we know from the papers devoted to horticulture.

The standard has also risen, so that it is now necessary to raise a larger number of seedlings each year; otherwise it is mere luck to raise one that can hope to excel. Last year I had 3,000 new seedlings, and I discarded them all but eighty after they flowered, and these I am growing on for further testing. I have 4,000 new seedlings this year. All but a few of these will have to go on the rubbish heap also. I have learned much about the habits and characteristics of the Chrysanthemum, but there is a lot to learn yet. For instance, there are some years when the climatic conditions develop depth of colour to a far greater extent than other years, and seedlings from particular seed parents that year will have this marked trait to a greater extent than in other years. The Australian seedlings (he continued) have been a great success in America as well as in England, judging from the amount of praise accorded to them in the American papers and the private letters received from that source. I have my Chrysanthemums sent out by a leading nurseryman in England, who makes a specialty of Chrysanthemums, and for two successive years he has sent the blooms raised in England across the Atlantic, and staged them at the leading show in New York, and he scored high awards on each occasion, proving that, in addition to size, they have keeping qualities also."

Blickling Hall, Norfolk.

THIS is one of the homes of the Marquis of Lothian, situated in a grandly timbered park of many acres extent, and but nine miles from Cromer and two from the somewhat quaint town of Aylsham. The mansion is built in the Elizabethan style, and is several hundred years old, and is an imposing brick and stone pile.

The entrance to it from the public highway is by a broad gravel drive, with a grand stretch of grass, backed up with a Yew hedge on each side of immense proportions. Fortunately, the grass is not broken up by beds or borders of any kind; not so much as a shrub or tree is to be seen in this approach. The flower garden, which is the great attraction here, is situated on the eastern side of the house, and is of considerable extent.

The ground slopes gently up from the house to the park beyond, and is backed up and sheltered on all sides with magnificent trees, such as Oak, Beech, Lime, Silver Fir, and such like. On the north side of the flower garden, on higher ground, is growing a remarkable specimen of the Oriental Plane. The trunk is at 4ft from the ground as much in diameter, and not more than 30ft high, but the remarkable feature is that the branches, when they reached the ground, have struck root, forming independent trees, so to speak, and have continued to do so all round, until the space covered by this tree is fully 35 yards in diameter—truly a remarkable and handsome specimen, and fully as old as the mansion itself. Fortunately for the public, the gardens are open one day weekly, a privilege largely enjoyed.

To describe the flower garden and its contents accurately would require much space. At a guess, fully two acres are occupied with beds, intermixed with small conifers, especially clipped English Yews, which for perfect management would be difficult to equal. No particular design appears to be in view in planting the beds; what is required, and certainly obtained, is a wealth of blossom and a blaze of colour, which is toned down by the magnificent tree surroundings. The beds are of all shapes, and thickly dotted on the trimly-kept and densely green grass. Hardy plants occupy much space, and worthily, too. Mr. H. G. Ocle, the capable gardener, makes the most of these subjects, knowing so well their value after thirty years' experience in this garden. Clematis Jackmanii, occupying the centre of a circular bed, loosely trained over a support 4ft high, was a veritable mass of colour; underneath this was growing one of the finest dwarf Heliotropes that I have seen. The plants filled the remainder of a circle, and were but 15in high. They carried trusses of bloom 9in in diameter, of a dark colour, and so fragrant!

Lobelia cardinalis Queen Victoria were growing in small circular beds, and such spikes of flower, fully 5ft in height, and such brilliancy of colour, that I was tempted to inquire the method of production. Mr. Ocle saves his own seed from approved forms, sows it in August, grows the plants steadily on through the winter, and really in this way treating them as annuals. I know that some persons have a difficulty in keeping these plants through the winter; here, then, is a remedy. Begonias are largely grown. Worthiana, a free-flowering scarlet, does here remarkably well. Magnificent are the beds of African Marigolds, especially the orange-coloured type.

Cactus and pompon Dahlias are largely employed, and with fine effect, in the larger beds, associated so pleasingly with various forms of Helianthus, Achillea filipendula, Cimicifuga

racemosa, &c. That charming blue flower, *Commelina cœlestis*, is here effectively employed. The plant is not nearly so much grown as its merits deserve. The colour at this season is quite unique. Mr. Oclee preserves the crowns yearly in paper bags after drying them.

Whole beds of *Funkia grandiflora* are here to be seen, and gorgeous they must be when in full flower, the blossoms quite rivalling *Pancratium fragrans*, while in foliage the effect is bold. *Clematis flammula* is here a great favourite, and rightly so, flowering so freely as it does, and emitting its pleasing perfume so freely. *C. Lady Caroline Neville* is a variety of such sterling merit as here seen that the wonder to me is that it is not more often seen. Snapdragons are evidently great favourites, and rightly so, so good are the strains of white and yellow. *Verbena venosa* in a mass presented a colour not found in many other plants, and not nearly often enough employed as its merits deserve. Stock Princess Alice once more demonstrates its value, if this were necessary. A large-trussed pink flowering *Geranium*, *Crema*, was effectively employed, and so was *Verona*, with its leaves of a golden colour and pink flowers,

Gadding and Gathering.

Clibrans of Altrincham.

The nursery, seed, and florist business of Messrs. William Clibran and Son, is one of the largest in England, since some 300 persons are employed throughout the departments. During the last two years the firm has been establishing itself in new nurseries at Hale, a short distance from Manchester, and are now well settled. At this place, which is the headquarters of the firm, there are plant houses to the number of thirty, divided into fourteen departments, as for instance those devoted to Roses, to Carnations, to Chrysanthemums, to stove plants, greenhouse plants, ferns, forcing, propagating, packing, business transactions, &c. In my notes in the *Journal of Horticulture* for May 14 last year the main features of the new nursery were briefly described, as the great packing shed, light, dry, airy, and covering half an acre, with its overhead travelling crane for the transposition of heavy packages; and it was then pointed out that one special feature of the place was its small



Chrysanthemum, Mrs. Filkins.

forming quite a pleasing contrast. Dianthus in variety were remarkable for the size of their flowers.

Many more subjects might be enumerated, but I fear I have already trespassed too far on space; enough has been said to show what a wealth of flower can be obtained with a minimum of labour and convenience expended.

In the grounds huge masses of *Tritomas* shed a glow of colour, so agreeably do they contrast with the scenery around. *Hydrangea paniculata grandiflora* is another plant effectively employed in the same way.

In the kitchen garden the crops are alike for their high state of cultivation. On the walls, too, there is really a good sprinkling of Pears, Apples, Peaches, and Nectarines, more than is common this season.—A WANDERER.

The "Journal" in Egypt.

Writing under date of March 27 from the Government Gardens, Delta Barrage, Egypt, Mr. Walter Draper thanks us for the *Journal of Horticulture* of March 10, and adds, "It is the best gardening paper I have seen."

iron railway tracks for "buggies," which are laid along the paths of every house, and down the extensive corridor, and upon the paths outside; in fact, everywhere that buggies with loads of plants can traverse. In no other nursery have I seen a similar device to facilitate the removal of batches of plants. And it must be remembered that each of the thirty span-roofed houses are 180ft in length, though the width varies, the propagating houses being of average size, while the pot Vine and Chrysanthemum houses are large and spacious structures.

Being situated by the side of a main trunk railway, the firm have an admirable service of trains for the despatch of goods, and the hint was dropped that they hope in the near future to have a siding of their own, so that "imports" and "exports" may be facilitated. Even now the coke used for firing is shot down from the railway embankment, and is filled into little waggons, which are drawn up a specially-built incline by means of an endless chain worked by a 1½ horse-power gas engine. This engine is situated in a wooden shed, and the cost of working is only 1d. per hour; and besides hauling the coke trucks, the same engine (made by Crossley Bros., Ltd., Manchester) drives a revolving circular brush upon which pots are cleaned, and also supplies the power for breaking crocks in a specially-adapted machine. This machine is really a strong made type of biscuit

crusher, and the potsherds are sifted into three sizes by means of wire netting—the small meshed nearest the out-put slot, the largest meshed at the bottom, and the medium-sized in the centre; the netting, of course, being fixed at an incline from the machine. The revolving pot-cleaning brush I thought particularly good, and an admirable time saver. There are other interesting mechanical devices which one might notice, but some remarks must be awarded to the plant collections.

In the notes of last year I remarked that this nursery was like a botanic garden in the variety of its subjects. It is, indeed, most complete. The floral and decorative side of the firm's business is a very large one, as the result of their shop in Market Street, Manchester. The purely market gardening element also furnishes another large share of the business done; for saleable market stuff is grown liberally for the Manchester market. In the height of the season the demolition of Lily of the Valley crowns numbers 30,000 to 40,000 weekly, and Callas, Pelargoniums, Marguerites, and Chrysanthemums demand much time and space.

VINES AND SOME GREENHOUSE PLANTS.

Our notes must, however, be confined to a few prominent subjects of special interest to private gardeners. The Vines we mentioned, and the stock of them are in a very promising condition, in all sizes, and of ages to suit present or autumn planters. Vines purely for pot culture are somewhat of a speciality. Carnations, as we have seen, form a department by themselves, which is proof of their numbers, and also, we may say, proof of special care. The plants were evidently in rude health and vigour, but the use of XL All Vapouriser at the moment of our visit precluded a detailed inspection. Such seasonable plants as Cinerarias, Cyclamens, and even Calceolarias, were seen and discussed, for with these three genera Messrs. Clibran have a fame, particularly with Calceolarias; and it will be conceded that an Easter batch in full flower is early. The size of the trusses, as well as of the individual flowers, and the remarkable spotting of some, and the rich colour-tones of the selfs were such as compelled admiration. The character and appearance of the plants, too, were good. So many as 200 varieties of decorative Pelargoniums are grown, and it may be recalled that we made a plea for this plant in a recent issue of the *Journal*. *Primula Kewensis* is a plant that will win its way, whether it be slowly or swiftly; and another yellow-flowered greenhouse companion, of a very different nature however, is *Oxalis cernua*. This plant is perhaps generally known, but where not, it is one that is well worth a place. Some growers are exceedingly successful with it either in baskets (for which it is admirably suited) or in pots. A useful cultural article will be found in J. of H., April 18, 1901.

RHODODENDRONS AND HARDWOODS.

The javanico-jasminiflorum Rhododendrons make far slower progress into gardens than one could desire, or than their merits deserve. We know of no flowering plants that remain so perennially in flower as do these beautiful sub-tropical Rhododendrons, so diverse and rich in their floraison. Some are yellow, some pink, others orange, anon scarlet and crimson—all shades of colour, and such as are not found every day. An intermediate house they *must* have, for the stove is too warm and the greenhouse too cold for their accommodation, and possibly herein lies a reason why they remain unknown to so many lovers of indoor plants. Pruning they object to, but their straggly shoots can be tied-in, and a shapely plant results. At Hale there is a goodly stock. The same applies to the Himalayan Rhododendrons and their hybrids, of which some fine specimen plants were noticed. *Luculia gratissima*, which produces trusses of most fragrant pink flowers, together with the unsurpassable *Camellia reticulata* and the new *Jasminum primulinum* were seen in health; while in a large house were splendid plants of *Acacia pubescens* and *Daphne indica*. The stock of the latter is in 5in and 6in pots, and healthier or more bushy plants I have not seen.

FOLIAGE AND FLOWERING PLANTS.

Coleus thyrsoideus is here; a dwarf, large flowered very white Calla, named The Godfrey, as well as *C. Elliottiana* attract attention in their several places. And when one considers the slow rate of growth of *Dracena Doucetti*, with its arching, symmetrical, leathery, green, gold, and creamy leaves, one marvels at the fine stock of even plants included in one of the houses, and it is at once apparent that this is what it is claimed to be—"the largest stock in the country." Other foliage subjects are seen in *Pandanus utilis*, the *Vacona*, with reddish leaves; and *Kentia Sanderiana*, that graceful species like a *Geonoma*. Ferns are a host in themselves, and not only are exotics somewhat largely grown, but British species also have a place, and no less important are the *Selaginellas*—*S. Emiliana*, *S. Martini variegata*, *S. graeca*, &c. The American novelty in ferns is *Nephrolepis Piedsoni*, and though America and the Americans are greatly over-rated, no one is ill-advised who accepts this as an acquisition. It and the Lawson Carnation are a good pair.

A string of other foliage plants may be mentioned in a sentence, and all are beautiful and of merit: *Ficus Parcelli*, *Panax Victoriae*, *Reidia glaucescens*, *Clerodendron fallax*, *Phyllanthus nivosus*, *Dracena Victoria*, *Hoffmannia*, *Gliesbreghtii variegata*, *Rex Begonias* (a specially fine collection), *Sanschezia nobilis* (with prominent yellow veins), and *Maranta Massangana*. Some of these are old; some much more recent; but all are highly desirable.

Medinilla Curtisi with its white flowers, purple stamens, and coral-red flower stems is chaste and very interesting; *Pavonia intermedia*, which bears crimson heads of bloom all through the winter, also deserves a place in any selection; and *Jasminum ligustrifolium* has charming white blossoms. *Ardisias* are cultivated, and when well-berried they meet a demand in the market. *Saxifraga sarmentosa variegata*, *Kalanchoe flammea*, *Urceocharis x Clibrani* (with flowers intermediate between *Eucharis* and *Urceolina*) are now invaluable, the latter being a good grower and flowers freely. *Anthurium Andreanum* *Fletcherianum*, with huge crimson spathes, is the finest variety yet produced.

These few notes must now, however, be concluded, though one feels how little can be done to describe a great establishment such as this in two short columns of print.

Amaryllis at Chelsea.

Once again the collection of *Amaryllis* (*Hippeastrums*) grown by Messrs. J. Veitch and Sons at their Royal Exotic Nursery, Chelsea, is in flower, and a bright display is exhibited. The house in which the plants are shown this year is one of the new smaller span-roofed structures, without a central bed, and consequently the same imposing effect secured in the old house is not to be expected. The novelties this year according to those seen at our visit this week, are not superior to what we have seen in former years, but there are abundance of shapely flowers having substance, vigour, and fine colouring. As heretofore, the pots are all plunged to the brim in tan bark in order to secure a cool bottom for the roots. The size of the pots is 5in and 6in mostly, each with one stout bulb, and the number of scapes per bulb is one, and in a great many cases, two, with three and four flowers.

Taking the lighter coloured varieties first, because they are fewer, we would name *Eos*, with pretty carmine veins and broad white beams in the centre of the perianth segments: a firm flower. *Titan*, a remarkably fine and distinct blossom, also with white beams down the segments, and rosy-crimson netting toward the edges. This is a very telling and pleasing flower. *Garames* was hardly at its best, but promises well, having a good white ground, and pale crimson veins, the base of the tube green. *Sirius* also comes into this light coloured selection, and furnishes a decidedly pleasing flower with rounded perianth segments nicely recurving at the tips, with white ground, deep rosy Picotee edge, veined and streaked with carmine-red. The flowers seen by us had been expanded for eighteen days, and were still fresh and good. *Cyrus* possesses a very good shape, and is distinctive. The larger part of the segments are of a good clear white, having a broad uncoloured central beam and laterally curved crimson veins in the middle of the petals. *Linden* resembles the beautiful Apple Blossom of last year, only that it is less crisped than that famous variety; and lastly *Avernicus* has pure white broad bands in the centre of each segment and at the base, the rest being bright scarlet.

And then we come to varieties of crimson, port, scarlet, and orange shades, which are also numerous. The five best are probably *Rupert*, a glowing crimson-scarlet; *Rodney*, crimson-apricot, with a white beam in the centre of the petals; *Mesona*, orange-scarlet with white edges; *Eloides*, very rich dark crimson and glossy surface; and *Phædon*, rich glowing crimson-scarlet with a dash of orange, and satiny surface, the centre very dark—one of the very best. Others of merit include *Eglamour*, bright crimson, 10in across, vigorous; *Minterne*, with dark, port-coloured, glossy centre, veins same colour, the intervascular tissue of a crimson hue toned with mauve. *Brabanto* is a monster in size, 11in across, good form and substance, rich crimson, with white beams. *Tarbat* is intense crimson, and almost black at base. *Khaki* is greenish yellow, veined and flushed dark crimson. *Euterpe*, of immense size, has good substance, and is coloured a glowing claret crimson; and lastly *Salus*, a big, showy flower, with fine strong segments of a bright scarlet colour.

It is a remarkable fact that even now batches of seedlings from these greatly improved forms will occasionally revert to the type of variety prevalent twenty years ago. For many years the Chelsea firm (as well as others) have striven for a pure white *Amaryllis*, and though varieties almost white have been secured on one or two occasions, they do not seem to be stable.

The other show houses at Chelsea contain many choice subjects, and the orchid ranges are bright with *Odontoglossums*, *Dendrobiums*, and other subjects. The collection of *Caladiums* is being finally potted for the Temple Show, and we think that one or two of the novelties then to be brought to public notice will compel admiration.—WANDERING WILLIE.

NOTES

NOTICES

Royal Horticultural Society.

The next fruit and flower show of the Royal Horticultural Society will be held on Tuesday, April 19, in the Drill Hall, Buckingham Gate, Westminster, in conjunction with which the National Auricula and Primula Society will hold its annual show. A lecture on "Diseases of the Potato" will be given by Mr. Geo. Massee, V.M.H., at 3 o'clock.

Presentation to Mr. E. Humble.

Perhaps this notice of a presentation which took place recently may interest your numerous readers:—Mr. E. Humble, who has been head gardener at Tettenuhurst, under three successive owners, for over ten years, resigned his charge on April 2 last. Upon the occasion of his leaving the garden employes presented him with a beautiful pair of gold links, together with an address and the signatures of the subscribers, wishing him health and success. Mr. Humble suitably replied, and hoped they all would work successfully with his successor. But, alas! some may and some may not, for the employes are being decreased from sixteen men to nine!—D. C., Berks.

Possibilities of the Kent Fruit-crop.

Kentish fruit growers are very hopeful in regard to the prospects of the coming season. Since the abnormally wet period experienced in the early part of February the weather has been most favourable for orchards and plantations, and the opinion was general among farmers attending Maidstone Corn Market last week that the chances of a good crop all round are excellent. The cold winds which prevailed throughout March had the effect of checking the rise of the sap, and so keeping back the bloom, and, as a result, the trees are in far better condition to resist late frosts than was the case last year, when the beginning of April found many kinds of fruit in full blossom. It is recognised that high farming will be necessary to bring the fruit to maturity.

Kew Gardeners and Organisation.

A meeting of gardeners employed in the Royal Botanic Gardens was held on the 11th inst, sixty being present, Mr. J. Besant occupying the chair. After a lengthy and interesting discussion of the tendencies and results of associated effort, the following resolution was put to the meeting, and adopted with enthusiasm: "That this meeting of gardeners employed in the Royal Gardens, Kew, heartily supports the action of the Provisional Committee of the proposed British Gardeners' Association in its efforts to secure—

- "1, The registration of gardeners;
- "2, Regulation of wages, and
- "3, Regulation of working hours;

And urges all gardeners and gardeners' societies to support the movement by every means in their power." Donations towards the initial expenses amounting to several pounds were subsequently collected.—A. G., Kew.

Fruit Culture in Ireland.

The cultivation of fruit on an extensive scale, and as a profitable industry, in the South of Ireland is at present engaging the attention of the Irish Department of Agriculture, and in this connection practical efforts are being made to encourage fruit growing on various farms in the County Cork. In the district of Clonakilty, a locality favourably situated for the purpose, several plots of land, comprising fifteen acres in all, have been selected at the instance of the Department to initiate the fruit culture scheme, to test the value of the undertaking financially. For the planting of these plots the Department has supplied free of cost to the occupiers 250 Apple trees, 50 Pear trees, 40 Plum trees, 500 Gooseberry bushes, 500 Currant bushes, 1,000 Raspberry bushes, and 3,000 Strawberry plants. Those have now been carefully planted, and the plots so cultivated are to continue under the supervision of the Department for a period of five years, during which time the owners will have to supply all the necessary labour. Later on jam factories will be established by the Department.

United Horticultural Benefit and Provident Society.

The usual monthly meeting of this society was held at the Caledonian Hotel, Adelphi Terrace, Strand, W.C., on Monday evening last, Mr. E. Burge in the chair. Three new members were elected. Nine members were reported on the sick fund, the amount paid out for the month being £31 1s. The usual quarterly grants were made to members on the Benevolent Fund.

Royal Meteorological Society.

The next ordinary meeting of the society will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, the 20th inst., at 7.30 p.m., when the following papers will be read:—"The Variation of the Population of India compared with the Variation of Rainfall in the December, 1891-1901," by W. L. Dallas; "The Cause of Autumn Mists," by J. B. Cohen.

Polygonum spectabile.

This, as yet scarce and high-priced, is a new outdoor decorative plant, belonging to the hardy herbaceous perennials. It is said to be the most valuable novelty in hardy plants sent out for many years. The foliage displays a variegation in all the colours of the rainbow, some of the large leaves being green with white, red, or purplish spots, blotches or stripes, others half or entirely pure white, orange, or fiery scarlet, not two leaves being alike in colouring, but all greatly resembling those of hothouse fancy Caladiums. This Polygonum, like the older kinds, does well in any and all soils or locations, in a densely shaded position as well as in one exposed to the hottest sun. A plant of such great decorative value, thoroughly hardy, and so easy of culture, may well be considered a grand acquisition.

Tasmanian Apples.

According to the opinion of experts it seems probable that the spring importation of Apples into Great Britain from Tasmania will be very largely increased during this and the following years. For nearly a quarter of a century this branch of trade has been on its trial, and, although many failures were encountered at first, the latest methods of refrigerating and insulating the fruit seem to be entirely successful in enabling the Tasmanians to place their products before the British public in perfect condition. It is the more curious because the trees on which the fruit is grown are mostly of English origin, having been in the days of the old sailing vessels, and before refrigerating had been invented, carried some thirteen thousand miles and planted in Tasmanian gardens. Luckily, the bringing of fruit from Tasmania does not interfere with the work of English gardeners and orchard-owners, since their stock of Apples has long been exhausted. The Tasmanian trade lasts from March till about June, when the English trade begins to come into competition with it. The American export of Apples, on the contrary, comes into direct competition with the products of the English homesteads.

Street Trees in London.

During the past two or three years many of the principal streets and thoroughfares of London have been planted with trees. Last season the whole length of Whitehall was treated to a double line, and a number were planted in the Strand, beginning from the entrance to the Royal Courts of Justice along towards Wellington Street. What was then begun has now been finished since the widening of the Strand was accomplished. Aldwych, so far as it is completed, has also its complement of Plane and Acacia trees. The trees are large, and good fibrous loam with some rotted manure has been given at the planting. The trees are well staked, and ought to succeed, though if a few failed there would be a very good reason in the fact that their roots were badly dried through exposure before the planting. While writing of these, it is of interest to note that the finest avenue and carriage way in London has just been completed between Buckingham Palace and Spring Gardens (near Trafalgar Square). This is a feature of the Queen Victoria Memorial scheme. The avenue is as broad or broader than the roadway by the Thames Embankment, with handsome leafy pedestrian paths at either side. An expansive vista between Piccadilly and the front of Buckingham Palace through the Green Park has just been arranged. To accomplish this it has been necessary to remove a large number of small trees, and to plant-up the sides of the vista with others. The Hawthorns in Green Park are again beautiful in the new year's foliage.



Pruning Tea Roses.

April is quite soon enough to prune Tea Roses in beds and borders. If, from early pruning growth becomes advanced, and severe frosts occur, they will be crippled as far as those growths are concerned, and other growths must be made for satisfactory blooms to be produced. Plants on walls and in sheltered positions, if early pruned, may escape spring frosts, but upon the whole the later pruning is the best. Weak, dead, and injured wood may be cut out from wall specimens, and the long growths, slightly shortened, fastened in. Dwarf plants, having well ripened wood, prune back to dormant buds on firm wood. For exhibition blooms closer pruning is adopted.—D.

Aubrietia, Dr. Mules.

A Royal-purple Aubrietia was the best item of Aubrietia history in the last decade. Perhaps one day one of Myosotis-blue will be added to the already fine group of colours. The Aubrietia has proved to be versatile in colouring, and to-day leaves its old rivals, the Alyssum and Arabis, behind for most purpose, although the latter cannot yet be dispensed with, as no yellow, and hardly a good white, Aubrietia yet exists. Fine varieties for association with the fine purpled Dr. Mules are Fire King, magenta crimson, and Moerheimi, large pink. The reds are still well represented by Liechtlini, whilst the paler shades of purple occur in different intensities in the numerous other kinds. Aubrietias are now throwing up numerous shoots, which make capital cuttings.—D. S. FISH.

Virginian Gala Flower.

A group of this fine North American composite was in good condition at Comely Bank Nursery during last summer. It is a little known plant, requiring to be freely mossed in a sunny place to get good effects. Lots of plants possessing yellow flowers are termed golden. The Chrysogonum virginianum has, however, a better claim to the title, for the starry flowers which give the wholesome Dahlia odour when squeezed have some orange in their colouring. A good point is its long flowering period. From May to September the flowers are freely produced on the well-branched stems, which reach to about 12in in height. Seeds should be sown in spring, in the following year the plants will flower. Divide, or take cuttings in April. During winter leave the plants alone. They do best when allowed to grow into large masses. Northern America is a home for hundreds of these composite plants that prove, because of monotony and weediness, to be often worthless for gardens. Chrysogonum is an exception. It is neat and bright, with the additional virtue of differing in appearance from everything else.—D. S. FISH, Edinburgh.

Flowers in the Riviera in April.

At Mentone it is easy to fancy oneself at home, so freely is English spoken in the hotel, only that the glorious sunshine pours down upon the sea in front, lights up the valleys, and gives a rich glow to the sheltering mountains in the background. Though the snow-clad Alps lie so near, winter deals lightly with this favoured region, and the gardens sloping to the Mediterranean are early ablaze with spring flowers. "Eastward," writes the editor of "Lloyd's News," who has spent his Easter holiday there, "the famous Lemon orchards are a constant source of delight, and all around are Orange trees hung with golden fruit. Camellias flourish in the open, and scarlet Geraniums give a rich colouring to the scene as they twine amid the quaint branches of the Prickly Pear. Heliotrope rises up in compact hedges, while climbing Roses vie with the purple Hibiscus in covering the sides of many elegant villas by the shore, and in sheltered nooks along the mountain terraces. Despite continuous building and the introduction of a good service of overhead electric trams, the place has not lost its air of quiet, so that walks or drives can be pleasantly varied according to the fancy and disposition of the individual. With a shade temperature ranging from 55deg to 60deg overcoats may be laid aside till sunset. Then it is always well to be careful, as severe colds are much more easily caught than got rid of."

Thunbergia Harrisi.

As a profitable plant to grow for cut flowers during the winter Thunbergia Harrisi is recommended. The colour of the flowers is light blue, with white centre; ten to twelve together in the form of sprays, or trusses fifteen to eighteen inches long, produced by the thousands on a plant well established, all through the winter. Propagation from cuttings or from seeds is not difficult, and the subsequent treatment is simple. Either in pots, or, which is better, in the bench or solid bed, they will do well. Best results, however, are obtained from older, firmly established plants, if properly taken care of and given sufficient head room to expand. The temperature required is about 60deg in winter.

Sir Thomas Hanbury's Garden.

For lovers of floriculture there is a never-failing treat in Sir Thomas Hanbury's delightful garden near Mentone, which is thrown open on two afternoons in the week. It consists of about a hundred acres, planted in terraces with flowers and plants gathered from all over the world, there being more than 5,500 species. Report says that Sir Thomas began life with the resolve to make a fortune by the time he was forty. Having succeeded, mainly through trade with China, he settled down just on the Italian frontier, and commenced the planting of his wonderful garden at La Mortola. There may be seen growing the Papyrus of ancient Egypt, the curious Bottle-brush tree of Australia, Aloes and orchids from remote regions, and novelties without number. The unpretentious house has historic interest, from the fact that Machiavelli stayed therein nearly four centuries ago, and Queen Victoria was a visitor in March, 1882. At one point the garden crosses the ancient Roman road, along which it is recorded that Pope Innocent IV. passed on May 7, 1251; Charles V. of Germany and his army in November, 1536; and Napoleon and his army on March 2, 1796. In a small museum are gathered remains of Nervina, a city which stood close by two thousand years ago.

Notes on Carnations.

The Carnation, as a plant, is one which puts the gardener's skill as a plantsman to a strict test, and every gardener should endeavour to produce perfect examples. Mr. Dean's notes, which follow, do not bear on culture, but on classification, and are from a lecture he delivered at Ipswich last year. We figure a plant of a flaked Carnation. The Marguerite varieties can be flowered from seed six months from the date of sowing.

The florists' Carnation for exhibition is divided into two main classes, the bizarres and the flakes. These, again, form other classes, such as the scarlet bizarre, which stands highest in the estimation of the florist, with scarlet and maroon or black markings; the crimson bizarre, with crimson and rose markings; and the pink and purple bizarre with purple and pink markings. The flakes also fall into three classes—the purple, which is the most valuable; the scarlet, and the rose flake; their value lying in the purity of the white ground and the intensity of the colouring of the flake. Great variety has been noticed in the marking, as no two petals are exactly alike.

The classes of the Picotee are—1st, the four main divisions: the red-edged, purple-edged, rose-edged, and scarlet-edged, and their classes, as light, medium, and heavy edges.

The selfs were next passed in review, with their many brilliant colours; also the yellow-grounds, additional interest gathering about this section from the passing round of Thomas Hogg's "Treatise on the Carnation," published more than eighty years ago, containing an illustration of a yellow Picotee, which it is said Hogg introduced to this country. The development of the yellow-ground type was sketched, and the selection from them of a race of true yellow-ground Picotees; the beauty and value of the yellow grounds being highly extolled. The Malmaison type took its name from having been cultivated in the garden of the Empress Josephine at Malmaison. Mr. Dean was emphatic in recommending the Carnation as a flower for town gardens, enduring the effects of the London smoke better than the Rose. He instanced the fact that some of the varieties raised by the late Mr. E. S. Dodwell were produced in a garden at Clapham within ten minutes' railway ride from Victoria Station, and that Mr. M. Rowan who lives near, can produce exhibition bloom of bizarres and flakes of the highest quality. Border Carnations put out in the open give better results than those wintered in frames and planted out in the spring.



A SEEDLING FLAKED CARNATION.

Seeds of Marguerite Carnations sown now will furnish plants which may be lifted and potted while in flower in September.

Water in Garden Scenery.

Loudon, in his hulky and now venerable "Encyclopædia of Gardening," has headed one section of the work, not very lengthily, thus, "On Operating with Water," which may seem of doubtful meaning for the can and the hose are in daily requisition, watering, indoors and out, being one of the matters needing the gardener's constant attention. Certainly in some of the months of 1903 he often had to operate with water in another way altogether, the object being to remove an excess of it from beds, paths, and lawns.

But what Loudon discourses upon in this section is the employment of water for scenic or ornamental effect, which, in his time, perhaps, was deemed of more importance than it is at present. Flowers were comparatively dear in Georgian days, and since then the number of species and varieties has greatly increased, so that the specialities of beds and borders receive notice rather than its general appearance, frequently. Water, writes Loudon, is "a material of a captivating description" as it occurs in Nature, hence it has fittingly a place in Art, when a garden is operated upon. It was thought a great advantage to have a garden with one side to a river or stream, especially if, from its position, the plants and trees were reflected on the water. Also, a stream usually served the purpose of a wall or fence, and it gave, by dipping, an unlimited supply of soft water, mostly clean.

It was doubtless from our Dutch friends that the fashion of cutting a short canal coming out of a river into a garden, was sometimes adopted; usually a row of trees was planted on each side. An instance, formerly well known to Londoners, was to be seen in the old garden of Chelsea College, on the Thames bank. Occasionally, when the garden was big enough, people contrived what is called a runlet, a little stream forming a half-circle, flowing out of the main stream and back again, crossed by tiny bridges. When there was less drainage of the land than there is now, many gardens of size were found to contain springs, which would either supply a pond or form a little stream to run away and empty itself somewhere near. Strolling amongst the market gardens west of London forty or fifty years ago, one often came upon a little rill, rising in the clay or gravel, and winding its way to the river.

The water of these rills was apt to be rather hard, even when it reached the Thames; but of course both gardens and streamlets have been swallowed by modern progress. But the Thames still exhibits on its banks numerous private gardens in Middlesex and Surrey, yet of the suburban streams, we believe the New River beautifies most in its course from the pretty village of Amwell to Islington, though few may be of great extent. Several of these gardens, one at Riverhead, for instance, are quaint, and in the olden style familiar to our Georgian ancestors. There is another of which I have heard, but not seen, rather higher up, which is almost illustrative of the seventeenth century mode, its chief features being preserved.

Spring Gardens, Charing Cross, is a place known by name all over the world, and it really had, formerly, a spring, accounting for the name. Over in Surrey, at Vauxhall, was another Spring Garden—in fact, there were several of these public gardens, having springs, large or small, much patronised during the Stuart period and after. We ask, wherein lay the popularity of these springs? Well, a draught of pure water was not always obtainable by London citizens, and then, some of these springs were reputed to have medicinal virtues. Probably a few of the springs of old London were slightly saline, and others contained traces of iron. A spring could be made to serve various purposes in a garden; thus, by banking it up, a small cascade or waterfall was contrived. If the spring had good force, its water might be thrown up as a fountain, falling into a basin or pond. One favourite device was to have a series of little ponds in a garden, joined by narrow channels, which were likely to be traps if a stroller did not look out. Many ponds in our modern gardens are fed by one or more small springs, and the water generally becomes soft enough to be utilised.

One effect of the recent wet season was that ponds partly fed by rainfall unduly increased their dimensions, the excess spreading over adjacent ground. It is a notable fact that the great rainfall has also opened up in gardens and fields springs that had been long dry. Henry VIII. is stated to have had in his garden at Nonesuch a fountain made to resemble a pyramid, around which were arranged a number of small birds, which



Exotic ferns at Royal Botanic Society's Show.

squirted water from their bills. Fountains of the sort familiar to us did no doubt exist centuries ago, but they were less frequent than jets or columns of water. How these were managed is uncertain, where the water could not be brought from a height above the garden. The machinery, whatever it was, must have been kept going by manual labour. Various were the devices in which water served to startle or amuse garden strollers. Stone or copper figures of satyrs and nymphs were placed about. From an aperture in the statue water flowed into a cup held by the hand of the statue, and ran down to a receptacle beneath. Then they had the heads of lions or dragons, with water issuing from the open mouth. A favourite contrivance was to have a tap hidden under a board, so arranged that if a person stepped upon it, water was squirted over him or her.

The French or Dutch introduced to us sheaves or fans of water, by which balls were kept in motion. Against a boundary wall, in some of the Stuart gardens, they had a hill or slope of rocky fragments, down which water was kept slowly trickling. In rockwork, however, as described by Georgian gardeners, water seldom appeared; the mounds were generally large, with trees or shrubs on the upper portion, and herbaceous plants below.

After his investigations amongst ornamental garden ponds, Loudon came to the conclusion that they should always be lined, but many people did not trouble to do this. Some, however, did line their ponds with tiles, slabs of stone, or even with lead. He recommends that the sides, also the bottom, should be covered with tenacious clay, which has been well worked before it is laid on, and afterwards compacted by beating. Upon the bottom gravel should be sprinkled, and a few stones added for the benefit of the tenants of the pond, if any. The beautiful effect of a pond or lake, so he thinks, depends largely upon the arrangement of its margin, which should have a variety of plants, but not too many; and rushes or others growing in the water ought not to extend far beyond the edge. Too much shade from trees or shrubs is a disadvantage to some ponds or lakes, though stuck, he says, cannot be spared from the scene. An island, stuck by itself in the middle of a pond, is objectionable. Loudon indicates the faults of the ponds which used to be common in kitchen gardens, and which were made the receptacles of any refuse.

Ponds in old-style gardens were often fishponds, carp and tench being favourites, and people occasionally angled for them, putting their captures in again, at least sometimes. Nowadays a pond may be the home of a variety of aquatic insects, some of which, in their mature state, may help to adorn the garden or devour other insects harmful to cultivated plants. The voracious, curiously masked grubs of the larger dragon flies may be provided with a sufficiency of food, and quitting the pond when winged to float in the summer sun, and prey upon smaller species; or we may rear the graceful "demoiselles" of the same family, and the brief-lived May flies. Upon the surface might run the lanky, active "water-measurers," or the pretty whirligig beetles could perform their evolutions with other aquatic beetles, though it may be scarcely possible to allow the water tiger or Dytiscus to have full range though his movements are amusing.—J. R. S. C.

The Cultivation of Vegetables.

(Concluded from page 301.)

The Beetroot is one of those vegetables often grown too large. Nine inches long and about as thick as one's wrist is quite large enough. Good Beet should be quite smooth, and free from side roots. Great care should be taken when they are lifted; if the roots are damaged all the colour will be lost in the cooking. The soil for this crop should not be too rich, or the roots will be coarse and ugly. The end of April is quite soon enough for sowing. Leeks, well grown, are always appreciated. They require a rich soil, deep and well-manured, if they are wanted of a large size, but they will thrive in almost any soil. We grow our earliest Leeks in trenches, and earth them up to get as much of them blanched as possible. For our later crop we plant deeply in deep drills, the soil being levelled down by the use of the hoe. By this means we get good, serviceable roots, large enough for any table, and plenty of them. For the later crop, seeds are sown in March, but much larger roots can be obtained if they are grown in the same way as that mentioned for growing large Onions.

Now as to Cabbages. Nothing is more palatable than a well-grown spring Cabbage when properly cooked. It may be termed a common vegetable, but, nevertheless, it is a most valuable one. The same applies to all the Brassica family—Brussels Sprouts, Cauliflower, Broccoli, Savoy, Kale, &c. The greatest drawback to all this family is clubbing. In this part of the country it is very bad, although in some parts it is hardly known. I find nothing better than fresh ground as a preventive. If this cannot be obtained, fresh soil can be added when planting. I take out a spadeful of soil when planting and replace it with some old potting soil, putting the plant in this, and I find it to answer admirably. I have succeeded in growing good crops in this way. Of course when the roots get through into the old soil, they often become clubbed, but by this time the plants are fairly large, and produce a good crop. "Veltha" claims to be a cure for clubbing; if it is, it will prove a great boon to the gardener. I have tried "Veltha" in our seed bed of Brussels Sprouts and Cabbages, giving the ground a good sprinkling with it when sowing, and we did not find nearly so many plants clubbed as we had done previously on the same piece of ground. I have not given it a trial in a general way, as we grow most of our green stuff in the field, and are not much troubled with clubbing there. In the garden it would be useless to try to grow good crops of Brussels Sprouts, &c., unless special care was taken in the way I have mentioned to prevent clubbing.

Celery is another vegetable which I think is often grown too large. Medium-sized heads, crisp and well bleached, are better in all ways than the huge heads often seen at our shows. These are generally pithy and useless for anything except flavouring. I have never seen the Celery crop so bad as it was last season, in some places not a sound leaf could be found. This was the work of the Celery fly. The only way in which the plants can be kept free from its ravages is by spraying them with quassia extract, and dusting with soot as recommended for Onions. This must be done early in the season, and occasionally when they are planted in the trenches. If persevered with you will not be troubled with the Celery fly, at least that is my experience. [See illustration on another page.—Ed.]

I often wonder why more cottagers do not go in for a bed of Asparagus. Is it because they have to wait for a year or two before they can cut it? After it comes into bearing it is certainly very little trouble for years. I think cottagers would do well to try it. I am sure it would pay them to grow it. The ground for Asparagus should be well trenched and manured before planting. If the ground is not too damp, and is well drained, the plants can be put in on the level, but if at all wet they must be planted on ridges. Three rows should be put on a ridge, one foot apart each way. One or two years' old plants can easily be obtained, and they are very reasonable in price, about 2s. 6d. to 3s. per 100. In planting, the roots should be laid out flat on the soil and covered up to about 4in.

Tomatoes for the last two years have been almost a total failure outside, owing to the unfavourable season, and unless some kind of protection is available it is useless to try to grow them outside. To be successful with them even in a good season, the plants should be well established before putting them out. The most successful way is, of course, under glass. No vegetable will give better return for generous treatment than the Tomato. Disease will seldom make its appearance if a little air is always kept on in the house. I have adopted this air system for the last two years, and during that time I have not seen a bit of disease.

For Seakale we plant a fresh bed every year when the roots are dug up for forcing. The long roots, as big as your little finger and larger, are cut

into lengths of 4in to 5in. The top is cut straight across, and the bottom slanting, in order to distinguish them. They are tied up into fifties, and laid to one side till planting. We grow about a thousand plants. In March or April these sets are planted in well-dug ground made as solid as possible, one foot each way. When the sets have commenced to grow all the growths are removed except one. In the autumn two rows are dug up and one is left. This is left to be earthed up, and is generally the best. We always get our first Seakale at Christmas. It can be had now at any time by using retarded roots.

I find it impossible to deal with every vegetable in this paper, and have therefore touched only on those which I consider to be the principal ones. To take each one separately, and describe its various points and treatment would require an evening for each kind. Marrows, Spinach, Artichokes (both Globe and Jerusalem), Cardoons, Cucumbers, Parsnips, Turnips, Salsafy, Lettuce, Endive, &c., should each have their places in the garden, and be well looked after. They all help to keep up, and make a change in the supply. The importance of the proper cultivation of vegetables cannot be too strongly impressed on all who wish to be successful in gardening. This should be their first study. A well-managed kitchen garden is always a pleasure, both to the gardener and his employer.—G. CARPENTER, The Gardens, West Hall, Byfleet, Surrey.

A GROUP OF FERNS.—The small illustration on page 322 represents a group of exotic ferns arranged at a recent exhibition of the Royal Botanic Society by Messrs. J. Hill and Son, of Dyson's Lane Nursery, Edmonton. These groups are generally set up with skill and good taste, and from our frequent reports, it will have been gathered that the subjects are meritorious in more ways than one. This firm does a large trade in ferns, in which they are specialists.

RECENT PUBLICATIONS.—"The New Forest," by Mrs. Willingham Rawnley, with twenty-five full page illustrations in colour; London: Adam and Charles Black, 7s. 6d. * * "Economic Zoology," second report, by Fred. V. Theobald, M.A.; British Natural History Museum, London, 6s. * * "Journal of the Board of Agriculture," March, 1904, 1s. * * Eighth annual report of the Experimental Garden, Drottwich; fourth annual report of the County Instruction Gardens; and twelfth annual report of gardening instruction for the year 1903. * * "Spring Gardening," being No. 13 of the rural handbooks; Dawbarn and Ward, Ltd., 5, Farringdon Avenue, E.C., 6d. net. * * "The Estate Magazine," April 2, 6d.; 2, Waterloo Place, Pall Mall. * * "The Citizens' National Union," being an old age pension scheme revised and brought into line with the fiscal question of to-day, by John Tullis, Glasgow: London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd., 6d. * * "Calendar of Garden Operations," 6d. net.

GROUP OF FORCED SHRUBS.—Messrs. W. Cutbush and Son, of Highgate, N., invariably exhibit groups of choice forced flowering shrubs and plants at the meetings of the Royal Horticultural Society during February, March, and April, and they also appear at the exhibitions of the Royal Botanic Society in Regent's Park. It was there that the above photograph was taken by one of the girl probationers in gardening, who also photographed the group of ferns.



Forced shrubs at Royal Botanic Society's Show.



Violet Sport:

I enclose a few blooms of a pale blue sport of the double white Violet, Swanley White (syn. Comte de Brazza). The sport occurred the year before last in another garden in this parish as well as in my own, and I believe has also originated elsewhere and been named. I showed some specimens to the late Mr. Thompson, of Ipswich, and he did not think the sport worth keeping. However, the plants have much improved, and I think the variety is worth growing. The colour is pleasing, size and scent are good, and the plants seem strong and healthy. But they follow the habit of Comte de Brazza of not blooming freely till the spring.—W. R. RAILLEM.

Vine Roots and Their Action.

The timely remarks of Mr. Taylor on page 279 are most interesting and instructive, especially coming from one so strictly observant of the ways of the Vine. The young Vines referred to in my earlier notes I found had reached a length of new growth, measuring almost 2ft before root-hairs were visible. It might be rightly accounted an extraordinary occurrence that such a length of growth can issue without the aid of new and active roots. The reference by Mr. Taylor to the formation of autumn roots on young Vines brings to my recollection a similar instance volunteered by a gardening friend during the past winter. A house for some time unprofitably occupied by languishing Vines was a means of petition for their dismissal, and permission was sought and gained for clearing out both Vines and border, and a new and clean start was made. Vines were purchased from the nursery, and were received while the reconstruction of the border was in progress, and an examination of the roots revealed exactly what Mr. Taylor recounted in bygone days at Longleat. Whether such instances are accidental, of rare, or of common occurrence, it does not seem quite clear; but the gardener referred to, on finding new roots, at once decided to plant forthwith, and thus foster this precocity of root movement. Possibly, had further research been made, and planting deferred for a time, it would have been found that these autumn root extensions were of brief season, and served a purpose which is not at present clearly understood.

The remark of Mr. Taylor anent the drouthy state of Vine borders in winter is one that enforces another and broader thought. Pot Vines, grown by the trade or private gardeners for the production of early forced crops, are subject to a course of drying-off as a means of enforcing maturity and rest, prior to their being again started into growth in the forcing-pit; yet a similar state of dryness in the established border is considered inimical to real success. The question that arises is, Ought not these autumn roots to be more carefully preserved, and the drying off made less severe? The functions of such active autumn feeders is not at present clear, but it might be reasonably assumed they in some degree apply the finishing course in perfecting latent buds both of fruit and leaf.

It is well remembered, and in some seasons oft-repeated, that Nature has occasional freaks, and cannot always be depended on to do everything correctly year by year as seasons recur, hence Mr. Taylor's and my own informants' cases may, by chance, have met Nature playing loose, as it were, with her common customs. Instances are not wanting where fine Grapes are produced annually, and where, too, the borders and waterpot are by common consent divorced in winter. Such facts go to show that withholding water inflicts no particular injury, contrary though it is to natural laws. It is equally true also that no uniform rule or custom can be made to satisfy in every class of soil, situation, or structure.

There is now, and always will be, a large amount of mystery associated with the growth and forcing of Vines and other trees under glass. Theories well-learned and derived from much close observation, may be reversed in the course of one's career, and the intelligible "rules of the road" disturbed by unfamiliar passages. Many past and present exponents of the craft have scored exceedingly well, leaving landmarks for the emulation of the rising generations, and examples that cannot but inspire others to do as well, if not better. The functions of Vine roots afford so interesting a subject for discussion that it should not be allowed to slumber.—W. S.

Potato Disease, and Prejudice against Spraying.

When the means of warding off disease in the Potato crop is known, will the British public act upon the information? In East Suffolk and in Devonshire I have demonstrated the good that comes of using sulphate of copper and lime two or three times in the season. One woman in East Suffolk (near Bungay) said as I left the village: "That there man have pizoned my taters. My husband gave him leave to do 'em. He may ate 'em; I doant." A man not far from the same place said to me: "No. I'm not coming to see your spraying, for neither you nor any other man can stop the disease when God Almighty sends it!" In a village not far from Exeter a farmer was invited to come and see the demonstration about six years ago. "No, I do not believe in it," said he. "If the County Council will send a man to catch the farmers' rats, then I will thank them." The rector of Stokenham, South Devon, tells me that his Potato crop was much helped by spraying during last year's wet summer. Mr. Dutton's sprayings came out well in Devon; but I need not tell of my personal work at present. I wish to call special attention to the need of using information that most County Councils have, on the subject of growing crops of sound Potatoes with a small—a very small—chance of loss by disease. Surely it is not too much to ask that farmers and gardeners shall show a more decided readiness to accept teaching that will safeguard their crops?—X.

Chelsea Cedars.

Some special interest attaches itself to the decease of the last of Chelsea's famous Cedars, which has, indeed, lived rather longer than many persons expected. This survivor of the original four must have been at least 220 years old, therefore we must presume it to be the most venerable of British Cedars, if it be the fact that the four of Chelsea Physic Garden were the first that arrived in this country. Certainly there have been, and are yet, some, we believe, of larger size than the Chelsea ones, though younger.

The chronicle of the garden fixes the date of 1683 as that when they were planted, being about 3ft high, one of the many gifts to the establishment for which the Apothecaries had to thank Sir Hans Sloane. Just then Mr. Watts was the curator, who did much to improve the garden and its houses, though subsequently he was accused of treating the place with neglect.

Whether the position that the trees occupied on the Thames bank was a good one may be doubtful; it was somewhat exposed. Also, this species might do better on chalk or gravel than on the cold clay of Chelsea.

We know of a flourishing Cedar near the edge of the river at Gravesend which is in a much more exposed position. Anyhow, the four trees of the Physic Garden had attained to a growth of about 11ft in 1750, nearly 70 years old then, and in 1771 two had to be cut down, decay having set in rapidly. This was attributed partly to the pressure of a quantity of snow during a severe winter. The third lingered till 1878, when it and the companion left had reached the size of 12ft, measured three from the ground. Now the fourth has succumbed.—J. R. S. C.

Commercial Fruit Production.

Trees are bought in increasing numbers yearly; and they cost, say, £17 10s. per 100; good trees are not dear at that price. At 30ft apart, 48 trees would be wanted to the Imperial acre, 61 Scottish, and 79 Irish. Therefore a new orchard of three acres, at 30ft from tree to tree, would be supplied for £15 15s.; digging holes 20in deep, £2 5s.; manures (where wanted), £2 5s.; and stakes (I will not mention these in detail, their cost varies so much), say, £1. The above is a fair estimate for good work. Hundreds of acres are planted for much less cost, I know, and that is a main cause of failure among farmers. A thorough breaking up and mixing of soils does much to increase their feeding power for years to come. A fair amount of basic slag, superphosphate, and kainit, mixed throughout the 20in depth of soil will be a storehouse of food for the future. An outlay similar to this is an outlay that any landlord worthy of the name could profitably meet, and he is the right man to meet it. Here and there the work is done well. When orchards are properly planted with Bramley's Seedling, Alfriston, Cox's Orange Pippin, or other Apple trees, ten years' growth becomes of an annual value equal to from 10s. to 30s. per tree. With trees at 30ft apart the farmer can wait for his crop with the satisfaction that he is taking, in feed for his sheep, pigs, fowls, almost the whole value of his pasture. He thus grows his Apples for the looking after the trees to a considerable extent. Mr. J. Cheal, of Crawley, in "Fruit Culture," 1894, says: "The quality of our fruit of the best varieties, when grown with care and

scientific skill, is superior to that from over the water, a fact abundantly proved by the much higher price invariably realised for such fruit. The moral obviously is that those who grow the fruit must produce the highest quality. The trees must be cultivated, and not allowed simply to grow." I look for brighter and lovelier orchards in our fair island soon!—X.

The Gardeners' Association.

The proposed Gardeners' Association, if permanently established, will be a great boon to all gardeners. Such a union is greatly needed, seeing the miserable wages gardeners are paid. Take other classes of men who have a union, whose work requires a small amount of skill compared with the gardener—because they are united they demand good wages; and if all gardeners, whether public, nursery, or private, unite, they could do the same. There are two classes the association would endeavour to debar, viz., the men who have taken up gardening and have not served an apprenticeship; but who think they can do better than the men who have "served time"; these work for lower wages. The second class comprises the foreigners who overrun the nurseries of this country, and cut down the price of British labour, not for their love of gardening, but just to learn the language; gardening is generally a secondary consideration with them. The gardeners of this country, if they want to improve their condition, should give the association all the support they can, that it might carry out its aims, for not till they are carried out will the conditions of gardeners improve.—T. B., Surrey.

Some foolish correspondents (one can call them nothing else) have said that gardening and gardeners are a luxury, and upon that assumption have based a superficial flippant criticism of the propositions that have been made for the formation and work of the Gardeners' Association. In a rich country like that of Great Britain where is luxury known to begin; where to end? Are artists, actors, musicians, litterateurs, jewellers, and endless manufacturers not "luxuries" in the same sense that gardeners are? Yet woe for the day when Great Britain would seek to diminish the numbers of those who practise in any of these institutions of our advanced civilisation. And those who therefore would feebly, timorously, foolishly wail that gardeners must not band themselves into a union for the development of their interests, equally with that of their fellow men in other callings, because they are "luxuries," and therefore can be dispensed with—these nincompoops misunderstand the spirit of the people of our times. With the wealth that exists, gardens are inevitable, and as commercial commodities, fruits and flowers and vegetables will always be wanted, and increasingly, as is evidenced by the growth of commercial horticulture. If private gardeners charged the commercial value for every pound of fruit that left their gardens; for every basketload of vegetables; for the use of every plant taken to the mansion; and for all the cut flowers sent to "her ladyship," not forgetting a handsome fee for the general pleasures afforded by the gardens *in toto*, would they have cause to be afraid of any change in their position? Never.—D.

Xanthoceras sorbifolia.

This beautiful shrub to my mind formed the most noteworthy exhibit at the R.H.S. meeting in the Drill Hall on the 5th inst., when Messrs. Veitch placed before the Floral Committee and visitors a most remarkable collection of beautifully flowered pot plants. This lovely hardy Chinese shrub was, according to the "Dictionary of Gardening," sent to England so late as 1870. It is there stated to be hardy and to thrive in any light garden soil. I must confess that my experience of it has not been very encouraging; but then the soil where I have planted it is not very light, but rather tends in the opposite direction, and this would probably account for my disappointment. For although it has grown fairly well, the wood has never ripened properly, with the result that about one-half of the current year's growth always succumbs to the first sharp frost. Evidently the wood must be thoroughly matured in order to secure flower, and if ever a shrub deserved a little trouble or extra attention to attain this result, *Xanthoceras sorbifolia* is the one. It deserves a warm south wall, with a little well-prepared soil to grow in. The individual flowers are not unlike the "Bridal Wreath," or *Francoa ramosa*, but they are borne on densely packed trusses all up the new wood, with an extra large and long truss at the apex. The leaves are decorative, being pinnate. The flowers are white, and as they age the centre of each turns chocolate, giving them a very attractive appearance.

As a pot plant it is most decorative and beautiful. Messrs. Veitch are to be congratulated for bringing this beautiful shrub to the notice of the general public.—T. ARNOLD, Cirencester.

Entomological Notes.

The Celery Fly, and Others.

As cultivators, our knowledge of the insect pests of the garden is not always so extensive as needs demand, and our losses are often largely the outcome of our own want of knowledge and forethought. The caterpillars of the Winter Moth, of which a figure was recently given in these pages, have still to be fought by means of Paris green sprayed very slightly upon the trees, and the wingless females may still be seen upon the grease-bands around the trees.

The Apple-blossom weevil and the Gooseberry sawfly will soon be the subjects of keen surveillance, and their depredations must be "nipped in the bud." The caterpillars of the Figure-of-8 Moth are seen now or shortly, and when the days become a little warmer, and seedlings of the vegetable crops begin to develop, the numbers of enemies increase in ratio, and the gardener's wits and work are never still. We draw attention to



THE CELERY FLY.

1, fly; 2, larva; 3, pupa. The lines show the actual size of the subjects.

these things timely, and have produced a figure of the Celery fly, which appears this month. All of us know the unsightly leaves mined in every part by the larvæ of this fly, and they also descend and bore among the tissues of the succulent stems, thereby causing decomposition, and spoiling the samples. Rot may set in, and the plants fail.

We have not space to give the full life-history, but we trust our readers may use of the generosity of the Government to the extent of sending a post-card to the secretary of the Board of Agriculture and Fisheries, 4, Whitehall Place, London, asking for the leaflets on injurious garden insects, and no charge is made for them. When bound in brown paper covers and indexed, they furnish a useful series for ready reference.

The New Soil Science and Its Results.*

(Continued from page 299.)

I am induced here to comment upon the experimental work of many of the best-known scientific guides of agricultural research stations. They have argued, from the ash constituents of plants, that magnesia should be favourable; accordingly they have proceeded to employ sulphate of magnesia, with the result that in many or most cases that has been found to be a disadvantage. Now, gentlemen, I will ask you, do you consider it common sense to expect living bodies—because I have repeatedly told you the fertility of a soil is most certainly dependent upon its having those various groups of diligent micro-organisms—is it scientific or sensible to expect those living bodies to work assiduously, or at all, on doses of Epsom salts? Gentlemen, it is no wonder you laugh, but that is what they call scientific experiments—original research! The new science teaches us that it is quite as necessary to maintain suitable and available lime and magnesia compounds in the surface soil as it is to use phosphates or potash or nitrogen, which are so invariably and so stupidly referred to almost universally as the plant essentials. Now, gentlemen, although attempts have been made to belittle my work on this subject, and it has recently been said in the public press that the whole outcome of my work has been "small doses of ground lime," I am vain enough to think that, had I done nothing else than lay bare the truths underlying and implied in that, I am entitled to the thanks of the agricultural community, and to the applause of those vainglorious incompetents holding chairs and lectureships in agriculture, and of those pluckless curs who shelter themselves behind a *nom de plume* in newspaper correspondence. When lime, or magnesia, in the caustic state, is applied to soils in large quantity, a large proportion of the advantageous organisms are destroyed, in consequence of which several years may elapse ere the organisms gather their legs again, and the soil becomes productive. In the meantime a large proportion of the lime is lost by sinking in the soil, and by solution and drainage. When applied rationally, in accordance with the dictates of the new soil science, the whole of it is in a very short time converted into the carbonate and the silicate.

And what, you may ask, is the benefit of that? Those car-

* Paper read before the Renfrewshire Agricultural Society at Paisley by Mr. John Hunter, F.I.C., F.C.S., Edinburgh.

bonates are as much *essentials* as the trio to which your attention is so often and so ignorantly directed. They are essential foods for our advantageous soil organisms, while they are, directly or indirectly, exterminators of disadvantageous micro-bodies.

For nitrification those compounds are of extreme importance, but not in that rôle pictured in books. There it is universally stated that the nitrifying organisms manufacture free nitric acid, and that that somehow or other finds out and links arms with the carbonate of lime in the soil, and converts that into nitrate of lime. Such a view, to be expressed in lecture halls or in books, by men who presume to pose as teachers of science, is most unpardonable. Nor can I understand how students can sit and swallow such rubbish, because presumably if they are attending a course in agricultural science, they must know something of chemistry and of the properties of albuminoid or protoplasmic bodies. Anyhow, to say or to believe that a *living* protoplasmic thing can, from the day it starts to perform its life's functions, continue during its whole existence to mic-turate free nitric acid, is saying or believing in what is an



Alisma Plantago,

A HANDSOME NATIVE WATER-PLANT,
SUITABLE FOR THE GARDEN.

absolute impossibility. Free nitric acid must necessarily coagulate the living protoplasmic body itself, and I have yet to learn that that is compatible with life and work.

The product of nitrification in a properly cared-for soil is *mainly* nitrate of lime. Now, we might for a moment or two consider what is the importance of this process and product, and how does that product compare with nitrate of soda. Nitrate of soda, being soluble and diffusible, can and does enter the plant unchanged and practically alone; and, mark you, this is the carrying into the plant the comparatively useless *soda*, which cannot, under any conceivable conditions, perform the functions of lime or magnesia within the plant.

By way of illustrating this feature, let us look at the rôle of soda on the one hand, and lime on the other, as a neutraliser of the poisonous oxalic acid found abundantly in the leaves of some plants. If you use nitrate of soda, the salt formed would be oxalate of soda, which is soluble, useless, and dangerous, and, what is still worse, there is no association between nitrate of soda added to soils and the microbial products which are ever present when nitrification is going on; that is to say, the artificial nitrate of soda is alone, and goes into the plant practically alone, while nitrate of lime formation is unfailingly associated with solution

of the other essentials, if the soil be kept right, and the plant is thus supplied with a complete food at once. I should have mentioned that calcium oxalate is insoluble, and has its fixed position within the plant.

The result of using nitrate of soda is, as a rule, a *rush* of something green, which fills the eye but not the pocket. Grain so grown must be relatively rank in the straw, which is always liable to lodge, never more to rise, except with the fork, and the grain itself is always late of ripening, with the corresponding risks of late harvesting. Potatoes so grown must be soft and waxy, and bad keepers, and the same reasoning applies to Turnips and Mangolds, which never can possess the amount of nutritious matter, and cannot therefore produce so much beef, mutton, or milk as nitrogen from any other source where it is "available"—I mean to soil organisms. I have stood alone in these views for many years, but at last some continental investigators have confirmed my observations, and it is now accepted as undeniable that Barley grown with nitrate of soda is very undesirable for use in the brewery, nor it profitable to the distiller.

Before leaving this subject of calcium oxalate formation in plants, I would like to suggest here another point of the new soil science, which is this. When calcium oxalate within the leaf is exposed to sunlight, the oxalate is decomposed, oxygen is given off, and thus we can easily account for the elaboration of elementary carbon hydrates from this oxygen, water, and the inhaled carbonic acid.

Now I said that soluble silicates took up part of the lime added to soils. Many people and books say that silica is essential for straw; that silica gives a backbone to straw. Do any of you believe that? Silica is the principal constituent in glass; is it possible that glass could make a good backbone either for straw or for those men of straw who go about lecturing and teaching such things? Take it from me, that lime judiciously added to soils transforms soluble silicates into insoluble silicates, and prevents the soluble silica wandering into the plant, with these results, viz., that you will have straw with much less glass in it, straw which consequently must contain much more cellulose. It will bend with the wind and not break, it will possess a correspondingly increased feeding value, and it will put money in your pockets. Now, gentlemen, make no mistake. These arguments apply as much to pasture or hay as it does to grain crops, roots, or tubers, and I hesitate not for one moment to tell you who may be in the dairying industry that if you act on my suggestions—for your grass and Turnips—you will produce more milk and better milk, and your profits must be enhanced.

That also is a fragment of the new soil science, and according to this science every fertile soil must of necessity contain an abundance of the various groups of advantageous organisms: those organisms must have inherently in the soils, or there must be added, *all* the constituents which are essential to their life's work, and these are *not* confined to phosphates, potash, and nitrogen. Moreover, the *forms* in which "essentials" are present are highly important. For example, it is generally said that the lime added to soils in the form of sulphate in all dissolved manures is more than sufficient for the requirements of crops, but that view is most certainly erroneous, for it is the same in soils as in fermentation. The carbonate of lime is much more easily decomposed by the living bodies involved than is any other lime compound. Therefore it is much more serviceable because more "available."

You can therefore understand that the science of manuring is more complex than is suggested by the rule of thumb system which has so universally obtained, and which has brought so much discredit on most of the experiments of the past. You know that farmyard manure disappears much more rapidly from a light soil than from a heavy one. But why is that so? Gentlemen, always be ready and persistent with your why's, whether you encounter difficulties in your own work, or hear inexplicable statements from those peripatetic lecturers who now swarm the land. The only explanation which used to be forthcoming was that light soils were *hungry* soils; but, gentlemen, that means nothing! Our explanation is at once self-evident. Germ activity is much greater in a light than in a heavy soil. Now this knowledge guides us in choosing the forms in which we should apply phosphates and nitrogen to such soils; these should, of course, be of the nature of bone or fish manures, or Liebig's preparations—meat, meal, &c. Then there is the slow decomposing shoddy and leather, but take my suggestion, and confine the use of these to your back and your feet.

In like manner, we must consider the situation in choosing our potash salts. To use kainit on land in proximity to a seagirt shore liable to be swept by gales blowing landward is always risky, because such land invariably contains enough common salt already; and to be adding more, as you would by using kainit, than is compatible with the comfort, life, and work of our friends the invisible toilers, who dislike over-salted food just as much as, or more, than we do, is a mistake. It follows also that on such land it is a mistake to use muriate of potash, and therefore you should confine yourselves to the use of sulphate in such positions.

When we come to medium or heavy lands remote from the sea, if in a district with a heavy rainfall, it is always advisable

to use sulphate of potash, with perhaps a little kainit, while in drier climates use the muriate *mainly*, but if you want to speculate on weather, follow the law of averaging, and use a mixture of muriate and sulphate. As regards nitrogen for medium or heavy soils, the most suitable are natural guanos and sulphate of ammonia, although both of these may be used with great advantage on lighter soils, along with the slower acting bodies I have mentioned.

All these points are hanging on germ activity. In light soils refractory nitrogenous stuffs may be used, because their nitrogen is quickly converted into ammonia compounds by micro-organisms, then into nitrates by other groups, and this is the ultimate stage of progression. In heavier soils, where germ activity is not so great, the use of natural guanos and sulphate of ammonia saves the time required to convert nitrogenous bodies into ammonia salts, and thus they become available quickly to plants, because there is but one change to go through, viz., nitrification,

(To be continued.)

The Outdoor Fernery.

The Hard Fern (*Blechnum spicant*).

The Hard Fern deserves its popular name, from the toughness of its fronds as compared with those of most of its relatives; it is also thoroughly evergreen, and these two qualities entitle it to far more attention as a cultivated plant than it usually gets. It is, moreover, interesting, as bearing two distinct kinds of fronds. One set, which is barren, consists of once-divided fronds, like two bluntish, wide-toothed combs set back to back. These radiate laxly to form a pretty rosette, while the other fronds, the fertile ones, rise perpendicularly, and though divided like the others, are much slenderer in their parts, the side divisions being reduced to mere midribs bearing the spores.

A well grown plant therefore gives some idea of inflorescence, though of course the resemblance is only superficial. The *Blechnum* is very generally distributed, especially where hills abound. It is found in abundance on moorland and in valleys, on the slopes of stream banks, also in woods, and even on roadside banks under moist climatic conditions. It has a prejudice against lime, either in the soil or in the water, and hence must, under culture, be watered with rain water. Soil should be a mixture of yellow loam and leaf mould in equal parts, but we have found colonies of it in pure brick earth.

Owing to its tough nature, it does very well in the open rockwork, though it prefers the northern side, and should be located low down, as it cannot stand root drought at all. Even the common form makes a pretty pot specimen for a north window, but as a good number of very much prettier varieties have been fashioned by Nature's hand and found wild among the common type, it is these of which we counsel culture, while we would impress upon our country friends that a sharp eye may be well rewarded, even by something new, when its owner finds himself or herself in places where the fern is plentiful.

The writer, indeed, caught the "fern fever" incurably in the first instance by a discovery of this kind on Exmoor (*B.s. concinnum*, Drury), in a loosely-built stone dyke by the roadside. The dyke was full of seedlings of various species, amongst them hundreds of small *Blechnums*, and protruding from a clump of these he saw just the tip of a frond like a double row of dark green scallop shells quite evenly arranged. Pouncing upon this, and opening up the clump, six fronds all radiating from one centre were so characterised, and when the clump was extracted and the common ones removed, it was found to be a thoroughbred new variety, which is now in every collection, since it comes perfectly true from its spores. A lady friend on a walking tour in Devon, quite casually glancing about her when resting, found a prettily tasselled *Blechnum* at her feet, also a thoroughbred, i.e. alike all through and constant, and the writer the very day after the Exmoor find, strolling along the road near Wooda Bay, found a beautiful pendulous tasselled one in the hedge; that is twenty-one years ago, and the plant is still vigorous and in character.

Mr. Barnes and others in the Lake District have found a number of distinct and pretty varieties, and as one and all maintain their twofold form of frond, more of them are really handsome, the tasselled, erect, fertile fronds especially looking like green flowers. Some varieties have strap-shaped fronds, others are contracted half way up into round, saw-toothed lobes; others are dwarfed and condensed, while some branch as well as tassel, and in short there are at least thirty varieties of a distinct type sufficient to form a remarkably pretty group.

A very divided form, known as *Aireys plumosum*, raised

from spores of *Aireys serratum*, found wild, and also good, must not be omitted; it is decidedly the most beautiful of all.

Recurring to plants of this species in the open, it must be borne in mind that although they are by no means dainty (except as regards lime and hard water), the measure of their development is that of shade, moisture, and protection from wind.

On the exposed moor we shall find them healthy, but dwarfed to but a few inches in size; but on the other hand, in sheltered woodland glades and glens, with their feet, so to speak, in the water, we have waded through waist-high plants with a circle of barren fronds over a yard in diameter, a fact which gives a clue to the best treatment.—CHAS. DRURY, F.L.S., V.M.H.

Societies.

R.H.S. Scientific Committee, April 5th.

Present: Dr. M. T. Masters, F.R.S. (in the chair); Messrs. Massee, Chittenden, Saunders, Bateson, Shea, Baker, Hurst, Odell, Douglas, Holmes, and Drury, Drs. Cooke and Rendle, Professor Boulger, Revs. W. Wilks and G. Henslow (hon. sec.).

Richardia with coloured leaf.—Mr. Shea exhibited a specimen of *R. Elliottiana*, with the leaf half yellow and half green. The question as to the cause was raised; but at present there is no known explanation.

Daffodil with fringed trumpet.—Mr. Jenkins sent flowers exhibiting this peculiarity. It is analogous to "cresting," but was confined to the edge of the corona, only.

Scientific experiments at Wisley.—A discussion took place upon this subject, many valuable suggestions and communications being made by several of the members. Finally a sub-committee was formed to present a report to the council, consisting of Dr. M. T. Masters, Professor M. Ward, Professor G. S. Boulger, Dr. Rendle, Messrs. Chittenden, Bateson, Massee, Farmer, and Hurst, and Rev. G. Henslow, with power to add to the number. The sub-committee will meet at 3 p.m., April 19th.

Scottish Horticultural.

The monthly meeting of this association was held on Tuesday evening, the 5th inst., in Dowell's Rooms. There was a very large attendance of members, Mr. McHattie, president, in the chair. After the nomination of a large number of new members, Mr. Williamson, Edinburgh, read a paper entitled "Hardy Fruit Culture, and Its Bearing on the Repopulation of the Rural Districts." Mr. Williamson's paper dealt very exhaustively with the various aspects of fruit culture in rural districts, and pointed out how, by careful cultivation and proper means of marketing, very liberal profits could be made, which, however, by various speakers were considered rather optimistic. Mr. Williamson also dealt with dairy-farming and poultry-rearing, showing that they could be successfully carried on alongside of the fruit culture. An interesting discussion took place, taken part in by Mr. Whytock, Mr. Grieve, Mr. Cunnison, Mr. Todd, and others. A hearty vote of thanks was awarded to Mr. Williamson.

EXHIBITS.—These were both numerous and most attractive. Messrs. Dickson and Co., Edinburgh, brought an exhibit of beautiful *Cinerarias*, well-grown, with splendid heads of beautiful flowers, the exhibit including three *Cactus*-flowered varieties, which were awarded a certificate. Mr. Greenlaw, gardener, Benmore, Kilmuir, exhibited some wonderfully handsome white *Cyclamens*, some of which had nearly 200 blooms. Mr. Greenlaw also showed beautiful specimens of *Primula obconica*. Messrs. Laird and Sons showed a beautiful specimen of *Cypripedium Elliotianum* and *Dendrobium Dalhousianum*. Mr. John Downie received an award of merit for *Dimorphanthus mandshuriensis variegatus*—a very showy plant. Mr. Wood, Oswald House, had beautiful orchids. Other exhibits were from Mr. Woldie, Lamont; Mr. Leslie, Trinity Cottage; and Mr. Johnston, Hay Lodge. It was intimated that next month Mr. Gordon, editor of the "Gardeners' Magazine," would read a paper.

Metropolitan Public Gardens Association.

OPEN SPACES.—At the monthly meeting of the Metropolitan Public Gardens Association, held on April 6, at 83, Lancaster Gate, W., Sir William Vincent, Bart, vice-chairman, presiding, it was agreed to tender the respectful thanks of the association to the King as its patron, for the interest His Majesty had displayed in the open space movement, as indicated by his recently announced intention to open to the public certain hitherto closed portions of Richmond Park. An application was received for the laying-out of St. Nicholas, Deptford, churchyard, and it was agreed to find out from the Bishop of Southwark what guarantee could be provided for the maintenance of the ground if the association complied with the request. A letter was read

from the Poplar Borough Council agreeing to maintain All Saints, Poplar, churchyard when laid out by the association, and it was decided to take steps for carrying out this desirable scheme, and raising the money required. Suggestions were made respecting the churchyards of St. John's, Wapping, and St. Mary's Whitechapel, as suitable for conversion into public gardens, and it was decided to renew the efforts made on previous occasions to secure these grounds for this purpose.

It was agreed to oppose the Bill to be introduced by the Board of Education for acquiring the interesting Wycliffe Chapel and its large graveyard, Phillip Street, Stepney, for the purposes of the London School Board, and the Liverpool and Wigan Churches Bill, which seeks power as regards some eight or nine disused churchyards, to override the public law against building on such grounds. It was agreed to express the approval of the association to the Bill introduced by the Board of Agriculture for the much-needed consolidation of the Open Spaces Acts, and to suggest certain amendments.

In response to an application from the Islington Borough Council, it was agreed to render assistance in the laying out of the Norfolk Square area, which will provide a lung in a crowded part of the borough. Amongst a variety of proposals under consideration were the preservation from buildings of an island opposite Kew Gardens, the opening of Golden Square and of Vincent Square during summer evenings, the extension of Hampstead Heath, window gardening in Spitalfields, the erection of drinking fountains, the propagation of a variety of Poplar tree no longer obtainable, and tree planting in Maida Hill West.

Theale and District.

A meeting was held on Tuesday evening. Mr. E. Blatch presided, and a paper was read by Mr. W. Bazeley, of Twyford, entitled "A Chat on Orchids." A good discussion followed, in which the following members took part—Messrs. E. Blatch, J. Young, A. A. Harrison, R. H. Tutty, &c. A vote of thanks was passed to Mr. Bazeley.

Croydon and District Horticultural.

"Roses" was the subject of a paper read before the members of this society, at their room, Sunflower Temperance Hotel, George Street, on Tuesday, April 5, and an excellent exponent was found in Mr. W. Easlea, Waltham Cross, whose experience gained in the last twenty-five years was sufficient to recommend him as one who knew what he was talking about. A good deep strong loam he recommended as the ideal soil to grow them in, and where not naturally existing, should be made up by deep trenching, with the incorporation of fresh yellow loam and well turned farmyard manure. The planting is best done in October and November, but can be accomplished in February and March, or even to the middle of April.

Wargrave Gardeners'.

Mr. G. Stanton, of Park Place Gardens, read an interesting paper before the members at the last meeting, the subject being "Winter and Spring Flower Gardening." Reference was made to the late Mr. J. Fleming, at one time head gardener at Clevedon, who originated the system now spoken of as "winter and spring bedding." Other pioneers of the system were Messrs. Wm. Ingram and Wm. Wildsmith. Mr. Stanton's opinion was that winter and spring gardening had not improved so much as some other branches of the gardener's art. He divided the plants, &c., suited to this method of gardening into variegated, white and green leaved, yellow and golden leaved, red and purple leaved, green leaved, annuals, bulbs and specimen shrubs, and berried plants, and gave brief cultural directions for each kind. A useful discussion took place, and a vote of thanks was passed to Mr. Stanton. Mr. Mackenzie showed a collection of spring flowers.

Market Gardeners' Hailstorm Insurance.

The ninth annual general meeting of the Nurserymen, Market Gardeners', and General Hailstorm Insurance Corporation, Ltd., was held at the Registered Office, 41 and 42, King Street, Covent Garden, on Friday last, the 8th inst. The chairman, Mr. Harry J. Veitch, presided over a good attendance of shareholders. The premium income for the year amounted to £2,391 2s. 6d. on 31,423,363 square feet of glass. The interest and ground rents from investments amounted to £542 18s. 1d. The business done by the company in all branches showed a satisfactory increase, whilst the working expenses were at the ratio of £19 13s. 4d. per cent, a very low one for an accident insurance company. A dividend of 5 per cent., and a bonus of 2½ per cent., was declared, free of income tax; £1,480 was carried to reserve fund, making the reserves £7,500, and £506 2s. 2d. was carried forward. The shareholders expressed their satisfaction at the continued progress and the economical management of the business. Seven claims were paid for damage done by hail during the year in six different counties.



Fruit Forcing.

CUCUMBERS.—Instead of striving to renovate plants that have been in bearing all the winter, it has become a practice to uproot them, remove all the old soil, thoroughly cleanse the house, place in new, sterilised soil, and put out strong, healthy, young plants, answers admirably for large establishments and for marketing purposes. But many home growers are obliged to make shift with the old plants until a supply can be had from small houses, pits, or frames that cannot be utilised for the purpose until cleared of bedding or other plants, so the winter fruiterers have to be kept and renovated at the roots, and that without prejudicing the successional supply of fruit. Stopping and training and cutting out old growths to give place for young and fruitful successional shoots must be followed up, and copious waterings given as necessary. Assist plants in full bearing with abundant supplies of weak liquid manure, and earth the roots with rich warmed compost occasionally. Damp the floor about 8 a.m. and 3 p.m., the foliage being syringed lightly on fine afternoons, and keep the evaporation troughs charged with guano water or liquid manure. Shading will be most needful after a period of dull weather to prevent flagging, which must not be permitted.

MELONS.—In the earliest house the plants are swelling their fruits and require supports. Remove all surplus fruits and all flowers, also superfluous shoots, stopping and tying the growths as necessary. Afford efficient supplies of water, giving liquid manure as necessary for the maintenance of a free growth. Genial atmospheric moisture must be maintained by damping in the morning and afternoon, syringing the plants lightly about 3 p.m. on bright afternoons. Later plants showing fruit should, unless abundant and the plants vigorous, have the first blooms removed. Secure a somewhat high temperature and drier atmosphere during the setting, only affording as much moisture as will prevent flagging. Stop the shoots at one joint beyond the fruit, but employ the knife as little as possible during the setting period. In pits and frames ample bottom heat must be maintained, observing the conditions previously advised during the setting. When the fruits are set and swelling they should be placed on a piece of slate. If canker appear at the collar rub quicklime into the affected part until quite dry, repeating this as necessary.

PEACHES AND NECTARINES: EARLIEST HOUSE.—Where such varieties as Alexander, Waterloo, Duchess of Cornwall, Ansdan June, Early Louise, and Early Rivers Peaches, with Cardinal and Early Rivers Nectarines are grown, the stoning process will be over, and to accelerate the ripening they may be given a night temperature of 65deg, but falling to 60deg on cold nights. Admit a little air constantly. Close the house at 80deg sufficiently early to allow of an advance to 85deg or 90deg, the trees being well syringed and good atmospheric moisture secured. Remove the leaves over or in front of the fruit, and turn this with its apex to the light by thin lathes placed across the trellis. Syringing should cease when the fruit commences ripening, but a genial condition of the atmosphere must be maintained for the benefit of the foliage by damping the paths and borders twice a day, and keeping the soil properly moist.

SECOND HOUSE.—The trees in the structure started early in January, and brought forward gently, have the fruit in a forward state, the disbudding completed, and the shoots that are to follow those now fruiting laid in. Allow plenty of room in the trees, and do not keep them closely tied down for some time longer. Permit no more growths to remain than are necessary for next year's fruiting, or for the extension of the trees. Stop gross shoots or remove them, as it is highly important the sap be equally distributed, and an equality of vigour maintained through the branches of each tree. Pinch laterals at the first joint, and shoots retained to attract the sap to the fruit should only be allowed moderate extension. Endeavour to maintain an equal distribution of foliage that will shade and protect the strong wood from the direct rays of the sun as the season advances. Ventilate freely, but carefully, so as to avoid cold currents of air and sudden depressions of temperature. Water the outside borders copiously, and keep them mulched with sweet, rather lumpy manure.

TREES STARTED IN FEBRUARY.—Examine them frequently for disbudding; this is best done gradually, the strongest parts of the trees being commenced with. As the fruit is swelling freely, remove those worst placed, and leave only a few more than will be required for the crop. One to every square foot of trellis covered by the trees being ample for the large fruited varieties, and one to every 9in square for the

medium-sized and Nectarines. Syringe early on fine mornings, give a little air shortly afterwards, gradually increase it, and close about 3 p.m., but if the weather be very bright later closing may be practised.

TREES STARTED IN MARCH.—The trees are out of bloom, set the fruit well, and aphides made their appearance. Fumigation or vaporisation must be practised carefully, and on two or three consecutive evenings moderately. Syringe in the morning and on fine afternoons, always early enough to allow of the foliage becoming dry before night. Disbud gradually, and rub off all small and badly situated fruit as soon as the most prominent show signs of taking the lead. Ventilate freely on all favourable occasions, and close early with a view to husbanding the sun's heat, but avoid a close vitiated atmosphere, admitting a little air constantly to prevent it.

LATE HOUSES.—The trees are in full blossom. Ventilate freely, and keep safe from frost. To insure a good set it is advisable to turn on the heat in the morning, so as to raise the temperature to 50deg, and keep it at that, with a gentle circulation of air, turning off the heat early in the afternoon, so as to allow of the pipes cooling before night, and the temperature falling to its right minimum of 40deg to 45deg, which is quite safe, and ought to be secured after the blossoms expand, with a little air to prevent the deposition of moisture through the night on the flowers. Artificial fertilisation should be resorted to as necessary.—G. A., St. Albans, Herts.

The Kitchen Garden.

POTATOES.—The planting of Potatoes should now be brought to a close. It is a mistake to delay longer than the present date, as late planted tubers always suffer badly in seasons like the last from disease, much more so than those planted at an earlier date.

ASPARAGUS BEDS may receive a dressing of salt after all the heads have been cut. The salt should be sown at the rate of 1½oz per square yard. A stormy day should be chosen in order that it may be washed in quickly. There will be then no fear of any harm being done to the heads just coming through the surface. The salt will not only assist the production of heads, but will also keep weeds at bay for some considerable time.

SOWING NEW BEDS.—This is also an excellent time for preparing new beds to be sown down. The seeds germinate rapidly and grow away freely. It is a mistake to sow Asparagus seeds too early. This is especially the case this season.

CAULIFLOWERS.—Plant out more Cauliflowers to succeed those planted earlier. These should have good and well-prepared soil. The soil should have been prepared some months in advance by deeply digging, at the same time working in a liberal quantity of well-decayed manure. A liberal dusting of old soot should now be sown, and this should be lightly forked in. This will not only prove a useful fertiliser, but will also ward off slugs, which are so troublesome at this time of year among the plants. Sow a little more seed also.

LETTUCES.—More Lettuce of Cos and Cabbage varieties should be planted out now to keep up a succession. The soil should be rich in order to give a quick growth. Should the weather become dry, see that the plants do not flag. Sprinkle frequently on warm mornings till they are established.

CARDOON AND KOHL RABI.—Where these are grown now is a good time to make a sowing. Sow on good deeply-worked soil, and give ample space for the latter between the rows.

PARSLEY.—More of this should now be sown before the soil has lost its surface moisture. Parsley must have ample moisture to promote an even growth. Sow the seed on well-prepared soil, which is calculated to retain moisture during a long spell of hot weather.

RUNNER BEANS may also be sown. It will be necessary to give protection as they come through the soil. They should also have a sheltered position. It is a good plan to nip the points out of this early sowing to promote an early gathering of Beans, which will be found most valuable.

WRINKLED PEAS may now be sown. The tall varieties are generally the most productive, as *Ne Plus Ultra*, *Prodigy*, and such kinds. Sow thinly if the seed is reliable. It is a great mistake to sow Peas thickly. It is a waste of seed.

MELONS AND CUCUMBERS IN FRAMES.—Now is a good time to plant Melons in frames. Place good sound loam in the frames in a ridge along the centre of the frames, which should be made firm by treading, and should be done some days in advance of planting in order to become warm. A check to Melons is fatal.

RADISHES.—More seed of these should be sown frequently to keep up a supply of crisp roots.

TRAINING VERGES AND BOX HEDGES.—Grass verges should be edged with the half moon or edging iron, and Box hedges should be clipped now that the frost is not likely to be severe enough to injure the cut parts.

HOEINGS.—The hoe should be kept at work constantly on all fine days. Every available inch of soil should be stirred as deeply as possible.—A. T., Cirencester.

The Flower Garden.

PRICKING OUT HALF-HARDY ANNUALS.—Many of the seedlings of half-hardy annuals having got a sturdy size, and requiring more room for development, should be forthwith carefully pricked out singly in beds of soil in rough frames or in boxes, which can be sheltered for a time under glass until the small plants are established. Prepare a bed of soil about 4in deep, seeing that the material consists of good, rich loam, intermixed with a little leaf soil. A spent hotbed is a good foundation for the bed, but not necessarily indispensable. For boxes, a layer of flaky leaf soil or manure may be placed in the bottom, filling up with soil, making firm and level. Insert the plants 3in or 4in apart, making holes with a dibber or trowel sufficiently large to admit the roots without crowding. Give a gentle watering afterwards, and keep the lights over closely for a week or more until the plants have become established. Then gradually admit air. Asters, Stocks, Antirrhinums, Salpiglossis, Scabiouses, Zinnias, Perilla, Schizanthus, Tagetes, Nicotiana, and Portulacas may all be treated as above.

PLANTING MICHAELMAS DAISIES.—The various varieties of perennial Asters or Michaelmas Daisies are found to be so useful and indispensable in autumn, that it is desirable in order to have a display at that period for strong young plants to be placed out now. They will succeed in the soil of any ordinary well-cultivated border. Plant at intervals of 5ft or 6ft among other herbaceous subjects. In one season the plants grow to a good size, some reaching a height of 5ft. *Aster alpinus*, with its varieties *albus*, *roscus*, and *speciosus*, are only half a foot high. *A. Amellus* and varieties are 2ft in height, blue. *Novæ-Angliæ* and varieties are about 4ft, and bear rose-coloured blooms, with the exception of *rubra*, which is crimson. The numerous varieties of *Novi-Belgi*, containing white, rose, mauve, purple, blue, lilac, and violet colours grow from 3½ft to 5ft. *Thompsoni* is a handsome blue, 2ft high, and *Amethystinus* blue, 5ft high. Established specimens may be divided and replanted now to increase the number of any desirable varieties.

PANSIES AND VIOLAS.—The planting of young stock, which have been raised from seed sown last summer or from cuttings inserted in autumn, ought to be completed now without further delay, so that they may have a chance of becoming firmly established before the weather is hot and dry. Should the soil be poor and light, work in some decayed manure, preferably decomposed cow manure. Place the plants about 9in apart. Old plants with good tufts of growth will readily divide into good sized divisions with plenty of roots. They are excellent for lines or beds, planting them about a foot apart. The same necessity exists for good rich soil, and they may also be assisted shortly with a mulching of decayed manure between the plants.

PYRETHRUMS.—The double and single forms of *Pyrethrum roseum* are among the most beautiful and useful flowers of early summer. Well-established plants should remain several years undisturbed, affording them a liberal mulching of manure each season, and a few applications of liquid manure during active growth. Division of the old clumps ought to be effected occasionally, as by this means more vigorous growth and finer flowers are produced. The present is a suitable time to divide and replant, also to insert young plants from pots which have been wintered in a cold frame. Shades of white, rose, crimson, and pink are the prevailing colours.—E. D. S., Gravesend.

In Praise of the Parks.

It is the exception rather than the rule for a daily paper to furnish "a leading article" in praise of the parks of our cities, but the "Daily Telegraph" has done a service in this direction. "What of the grass of London," it asks, "over which you may wander for mile upon mile through the heart of the capital from Kensington Palace to within a few yards of Trafalgar Square and the Strand? And what, also, of the flowers which, to the devout eye of human sympathy, are fair and gracious among all things that only stand and wait? Wherever the glance rests now we see them giving magical touches to the parks, and we wonder again whether the average Londoner's eyes are even yet opened to the beauty of these green spaces, woodland vistas, and exquisite garden borders in which no city in the whole world can pretend to rival our own. Lord Beaconsfield and Mr. Meredith have not disdained to set romance in the airy depths of Kensington Gardens, where there are glades and copses in which you may spend a summer's day with little disturbance or none. From spring to autumn the flowers in the parks are the pageant of the year for those who live their whole lives in the Metropolis. The first scattered Snowdrops in Hyde Park are followed by the gold and amethystine petals of the Crocus beds, and then the Daffodils remind us, even in London, of Perdita's lovely lines—than which the music of mortal language can no further go."

Insecticides.

(Continued from page 274.)

LIME.—Freshly burned lime, slaked with the smallest quantity of water necessary to cause fall into a fine apparently dry powder, is a common dressing for land infested with ground pests, the application being made in autumn, or when the ground is clear of crops, at the rate of 8 tons per acre, 1 cwt per rod, digging or ploughing under shortly afterwards.

Of its beneficial action, especially on old soils, whether pasture at breaking up, or land long tilled and well manured, I need not enlarge. Mention of air-slaked lime as a dressing for crops attacked by slugs must also suffice, the lime being applied in the evening, and repeated as occasion require. Likewise if lime-water, made by placing a lump of quicklime about the size of the fist in a pail of water, stirring and leaving forty-eight hours, then using the clear liquid.

(1) For destroying slugs at night just after dark by sprinkling on with a rose watering can. (2) For applying to roots of plants affected by maggots, giving as much as in an ordinary watering. Then there is the linewash, a great thing for white-washing walls or boards of glass houses, also trunks and large branches of trees, the lime being freshly burned and made into a wash readily applied by means of a brush, hot water or cold being used. A lime spray made in a similar manner, only thinner and strained so as to be applicable by means of a syringe to the whole of a bush or tree until appearing as if white-washed, is grand for addling eggs, killing larvæ, hybernating pests, overgrowths of lichen and moss being annihilated, and birds prevented from eating the blossom buds.

METHYLATED SPIRIT.

This is spirits of wine to which imperfectly purified wood naphtha in the proportion of one-tenth has been added. It is an excellent remedy for all the scale insects, including mealy bug, being applied by means of a small brush to the infected parts, just a drop sufficing for a cluster of mealy bug. It is also efficacious for woolly aphids in Apple trees.

PARAFFIN OIL OR PETROLEUM.

This is well known as a volatile inflammable liquid obtained by distilling the crude petroleum or kerosine from the oil wells of America and elsewhere. It is poisonous to insects, and also injurious to plants, yet ranks as the most important of insecticides for sucking insects. In pure state it is seldom used, though occasionally employed in a very fine spray, and extremely lightly for dressing Turnips to keep off and kill Turnip fly.

Gardeners also sometimes use petroleum in ordinary state for freeing plants or Vines from mealy bug, a wineglassful being placed in a vessel containing 3 galls or 4 galls of water, and the petroleum forced into the water, either by one person syringing into the vessel whilst another applies it to the plant, or by the operator alternating syringes into the vessel and over the plant. The thus pure paraffin oil is distributed in very small amount, and not much if any damage is done to mature leafage. It, however, requires to be used with great care in the pure state, therefore, is most frequently used when emulsified.

The preparation of paraffin oil emulsion is very varied. The oil readily amalgamates with softsoap solution, or even with that of hard soap, but the softsoap emulsion is probably the best. For home use 1½ lb of softsoap may be dissolved in a gallon of water by boiling, and on removing from the fire add one pint of paraffin oil and stir briskly, or better, churn with a small hand syringe until thoroughly amalgamated or emulsified. This may be diluted with five to ten times its volume of water for use, according to different insects and foliage, the stronger for mature foliage and hard-bodied insects, and the weaker for tender foliage and soft-bodied insects.

(To be continued.)

The Bee-keeper.

The Stewarton Hive.

I have to thank "E. E." for his further remarks; but how am I to raise young queens if I have made up my mind to prevent swarming, and work in the lines already advocated by "E. E."?—HEXAGONAL.

Purchasing Bees.

Buying bees is like buying a horse, it requires a person of experience to give assistance and advice, or you may be sadly cheated. Some years ago an acquaintance of mine believed I knew all about a horse, for he asked me to give him some wrinkles in horse buying. I simply said, "Find out a man accustomed to horses, and pay him to buy one." The same holds good in the case of bees.

When some persons have attended a few lectures on bees, they are anxious to commence bee-keeping, and often on a

large scale. The lot for sale which is first heard of after determining to become a bee-keeper is bought, and disaster perhaps follows. The man is disheartened, everything sold at a loss, and he swears that the bee lecturer was an arch deceiver. Perhaps the colonies were weak, or had insufficient stores, or worst of all, they were diseased. All novices should make a small beginning. If the bees are for sale in the autumn get a reliable person to examine them, and to give you an idea of their value. If in the spring you decide to commence, then it would be well to buy a large swarm—a skepful.—HYBLA.

The Weather.

Notes on the meteorological observations at Newton Mearns, N.B. (300 feet above sea level) for three months—January, February, and March, 1904.

The first three months of 1904 has been a period in which rain has been below the average. There have been fewer storms than usual, and in the month of March the wind never rose once to a force of a strong gale. The sunshine was greatly deficient in the first two months, but there was a considerable improvement in the third month, so that the season so far as it has gone, shows a decided tendency towards more sunshine, less rain, and greater warmth than fell to our lot last year. The rainfall for the three months recorded at Poilokcastle, Newton Mearns, are here given, along with those of the corresponding months of 1903, which will be very interesting to your readers:—

1904.				1903.			
January ..	..	..	6.35½ in.	January ..	..	..	9.32 in.
February ..	..	..	3.84½ in.	February ..	..	..	11.53 in.
March ..	..	..	2.59½ in.	March ..	..	..	11.55½ in.
Total ..			12.7½ in.	Total ..			32.40½ in.

—N. R.

Weather in Perthshire.

The first ten days of April have been extremely unpleasant. Almost incessant high winds have prevailed, rising, as on the mornings of the 6th and 9th, to a gale. Very heavy rain showers have been frequent during both day and night, and outdoor work has been brought to a stand. Saturday was perhaps the most tempestuous day for many months, pelting showers of sleet and hail following in close succession. Monday was calmer, with a good deal of sunshine.—B. D., S. Perthshire.

The Weather at Hamilton, N.B.

It is hard to make Londoners, who have been basking in sunshine I believe for some time, understand the difference between the two districts separated by such a comparatively short distance. Yet we here have not had weather enough to engage in any important garden work in March; certainly not to undertake seed sowing on a large scale. The tempest of to-day and yesterday, assisted with the indifferent quality of the greater part of this year's seeds, should indeed seal the doom of what seeds are in. The wind and rain to-day, April 2, are phenomenal. The wind is blowing with the force of a gale, and the rain (cold, sleety rain) is falling in sheets. Fields and ploughed land have their myriads of lakelets. Yesterday the elements in turn pelted rain, hail, and snow; there were also some peals of thunder. Yes, truly, this part of the country has experienced a far worse spring than last year, bad as it really was. No seeds are in the ground, and the precious season is flitting by as stealthily as a ghost.—D. C., Hamilton.

March Weather at Belvoir Castle, 1904.

The prevailing direction of the wind was north-east, total 8 days. The total rainfall was 1.98 in. This fell on 23 days, and is 0.42 in above the average for the month; the greatest daily fall was 0.28 in on the 28th. Barometer (corrected and reduced): highest reading 30.431 in on the 23rd at 9 p.m.; lowest, 29.242 in on the 29th at 9 p.m. Thermometers: highest in the shade 58 deg on the 20th; lowest 23 deg on the 12th; mean of daily maxima, 45.45 deg; mean of daily minima, 32.58 deg; mean temperature of the month 39.01 deg, which is 2.67 deg below the average; lowest on the grass 18 deg on the 12th; highest in the sun 102 deg on the 19th; mean temperature of the earth at 3 ft, 39.64 deg. Total sunshine, 55 hours, which is 9 hrs 8 min below the average; there were 9 sunless days. Everything here is very late in coming into flower this spring. Fruit trees are showing blossom buds abundantly, and being so late we hope they will escape injury by frost this season. The first Apricot flowers opened on March 26, thirty days later than last year!—W. H. DIVERS.

Mr. Chas. Mason, C.E., a director of Messrs. Foster and Pearson, Limited, Horticultural and Heating Engineers, of Beeston, Notts, has been elected a member of the sub-committee of the Engineering Standards Committee now meeting at Westminster to discuss the question with relation to cast-iron pipes for heating, ventilation, and drainage.

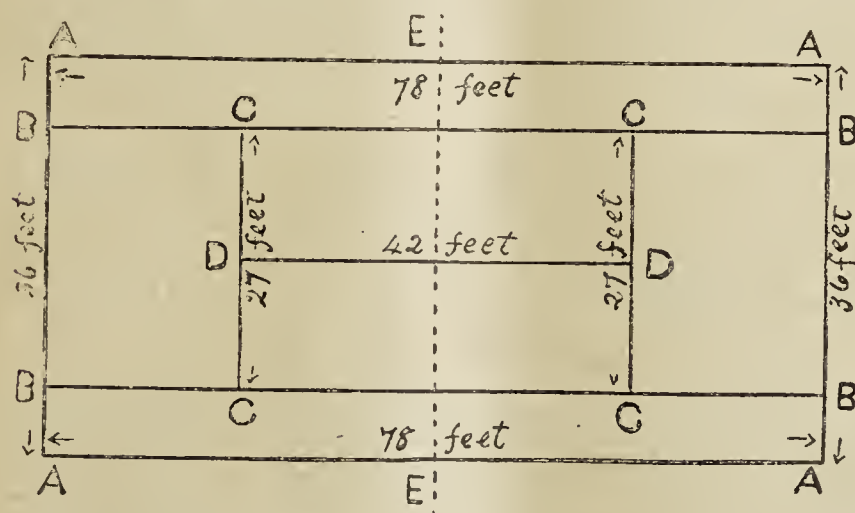


* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

MEASUREMENT OF AN ACRE (A. P.).—The paragraph reads: "Ten yards wide 484yds long; 60yds wide by 80 2-5th yds long; or 100yds wide by 40 2-5th yds long."

LIVERPOOL BOTANIC GARDEN: CORRECTION.—In my contribution in the issue of April 7, re "Liverpool Botanic Garden," please correct the following paragraph: Instead of several of the bulbs carrying four and five umbels, with five and six flowers on each umbel, it should read: "Several of the bulbs have three spikes with three umbels, and five and six flowers on each umbel."—Yours respectfully, J. S.

MARKING OUT A TENNIS COURT (F. C.).—The diagram accompanying will enable you to mark out the single or double courts as may be required by means of a lawn tennis marker, forming white (chalk) lines where the black are shown in the diagram. A, A, A, A, represents a double court for three or four players. B, B, B, B, shows a single court for two players. A, A, A, A, are the base lines for the double court. B, B, B, B,



Tennis, Court.

are the base lines for the single court. C, C, C, C, service lines. D, D, half court lines. E, E, net. A court for the single game is 27ft wide and 78ft long. The court for the double game is 36ft wide and 78ft long. The posts for supporting the net at E, E, should be placed 3ft beyond the sides. The service lines C, C, C, C, run parallel to the net, and are, therefore, 21ft distant from the net.

FIG LEAVES WITH BROWN SPOTS AND CURLING (W. E.).—The leaves are infested by the leaf-spot fungus (*Cereospora Bolleana*, syn. *Aseochyta earica*), which produced large, irregular blotches on both surfaces, at first pale and then turning brown, and having a dark, rusty appearance, hence alluded to as "rust." As the spots coalesce a large portion of the leaf is involved, and in consequence the tissues are contracted and the leaf curls up more or less upwards, sometimes entirely shrivelling, though usually leaving some part intact. The disease is most prevalent during periods of dull and moist weather, when the atmosphere is kept close through the conditions not being favourable for ventilating, and this is regarded as an inducement to the attacks of the parasite. Indeed, it is said that the fungus cannot exist where the house is freely ventilated and the growths fully exposed to every ray of light, this not being obstructed by crowding and by growths of other plants, such as Vines on the roof. No preventive measures, so far as we know, have been recorded, though it is possible that vaporisation with sulphur would arrest the spread of the disease. We, however, should rely chiefly on freer ventilation and keeping the atmosphere as dry as consistent with the health of the foliage.

SHOOT OF COX'S POMONA APPLE WITH EXCRESCENCES NEAR THE BUDS (H. D.).—The buds and swollen parts near them are very abnormal and disastrous, as you say that after a time the tissue and the swollen portions become discoloured, and the shoots die. On cutting open one of the swollen buds or adjacent tissues and examining the part with a microscope, we found several eelworms, and in turn a mite. The eelworms were located in the tissue next the bud, and the mite in the bud itself, or the remains of it, for the central part contained only erineum, or hairs that are due to the action of the mites, and upon which they derive nutrition. You are right, therefore in the deduction that "the evil appears to arise from the attacks of some insect, probably a mite, in the bud or beneath the bark, but there are the eelworms to account for, which is to us quite a phenomenon, and we hope to shortly illustrate the shoot and the creatures found in the swellings.

VINES UNHEALTHY (R. S.).—The sample of vitriolised bones appears a good one, and we hardly think this could affect the health of the Vines, though possibly there may be something of an injurious tendency in using acid superphosphate in the case of soils naturally of a calcareous nature, as we presume yours to be from the location, the soil being rendered more or less sour and having a tendency to induce growth rather than fruitfulness. Probably a dressing of basic cinder phosphate, 14lb per square rod (30½ square yards), or about ½lb per square yard, of border, applied to the surface and lightly dug in, would have a good effect by correcting the tendency to sourness in the soil, and in supplying the all-important iron and magnesia, in which the soil is probably deficient. The defective state of the bunch is due to the imperfect ripening of the wood, or the not sufficient formation of the buds and the bunches in embryo. We should keep the Vines on the dry side, not giving more water than absolutely necessary to maintain the foliage in a healthy state or keep it from becoming limp or flagging, and expose the foliage to all the light possible, thus securing sturdy, thoroughly solidified wood, and then the Vines will probably perfect the buds, and the wood being thoroughly ripened good results follow. Prune another year rather longer than usual.

WATERCRESS CULTIVATION (C. C. E.).—Watercress is grown in several ways. It may be cultivated in soil if a suitable place cannot be obtained to grow it in water, but the produce is inferior. If required to be grown in the ground, a shady, cool position should be chosen, and the seed sown in spring in shallow drills, thinning the plants to 6in when large enough. The soil must be kept constantly moist by watering. In autumn, some plants may be placed in pans, and transferred to a warm house to keep up a supply during winter. For a spring supply slips should be planted in September, digging the earth fine, drawing a slight trench with a line, filling this with water until it becomes a mud, and covering it about an inch deep with drift sand, then sticking in the slips about 6in apart, watering them until established. The sand keeps the plants clean. They will be ready for gathering from in the course of a few weeks, and the shoots should be invariably cut and not picked. The water system is the best, the advantages being many if a shallow stream can be obtained; indeed, the market supplies are had from beds that extend for miles in some districts, there being many in the Ver Valley in the neighbourhood of St. Albans, Herts. Where water can be obtained and regulated at will, the trenches should be so prepared that as nearly as possible a regular depth of 3in or 4in can be kept up. These trenches are usually three yards broad and any length, ranging from eighty-seven yards, less or more according to circumstances. Whenever one is to be planted the bottom is made quite firm and slightly sloping, so that the water that flows in at one end may run out at the other, it being usual to allow a narrow channel for the course of water on each side of the bed. If the bottom of the trench is not sufficiently moist a small body of water is allowed to enter to soften it. The Cresses are then divided into small sets or cuttings, with roots attached to them, and these are placed at distances of 3in or 4in from each other. The water is then raised to a depth of 2in or 3in and never higher. Planting is usually done in September, and each trench furnishes several crops during the season. After twelve months the refuse is thrown out upon the borders or banks which separate the trenches from each other, and the trenches given a fallow before again being planted. Superior produce is had by at the end of a week after planting, spreading a light dressing of well decomposed cow manure over all the plants, pressing it down by means of a heavy board to which a long handle is fixed obliquely. The water is then raised as before named. After every cutting a little decayed cowdung in the proportion of two large barrowfuls to each trench of eighty-seven yards long is spread over the naked plants, and this is pressed down by means of the rammer above mentioned. The beds in this case also are renewed annually.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (X. Y. Z.).—*Diervilla rosea* and *Cyperus alternifolius*. (S. P.).—*Scilla bifolia*; *Corydalis tuberosa*. (J. F.).—1, *Narcissus triandrus albus*; 2, *N. obvallaris*; 3, *N. maximus*.

Trade Catalogues Received.

- James Backhouse & Son, Ltd., York.—*Alpine plants, hardy perennials and florists' flowers.*
- Barr & Sons, 11, 12, and 13, King Street, Covent Garden, London.—*Hardy Perennials, Alpines, Aquatics, &c.*
- Geo. Bunyard & Co., Ltd., Royal Nurseries, Maidstone, Kent.—*Herbaceous plants.*
- Luther Burbank, Santa Rosa, Cal., U.S.A.—*New Shasta Daisies.*
- H. Cannell & Sons, Swanley, Kent.—*Floral Guide, 1904.*
- Wm. Deal, Feering Hill, Kelvedon, Essex.—*Seed Potatoes.*
- H. & J. Elliott, Courtbushes Nursery, Hurstpierpoint, Sussex.—*Carnations.*
- Heinrich Henkel, Darmstadt.—*Conifers, Bog-plants, Water Lilies.*
- Harlan P. Kelsey, Beacon Building, 6, Beacon Street, Boston, Mass., U.S.A.—*Hardy American plants and Carolina Mountain flowers.*
- John Peed & Son, Roupell Park Nurseries, West Norwood, S.E.—*Cannas and Dahlias.*
- Ant. Roozen & Son, Nurserymen and Seedsmen, Overveen, near Haarlem, Holland.—*Bulbs, &c. (for spring), Vegetables and Flower Seeds.*
- C. Sperenger, Naples-Vomero, Italy.—*First list of plants.*



Cattle-rearing and the Milk Trade.

The present season is the most important one to the rearer of cattle, and the question may often be asked of him, Am I right in using my milk for purposes of calf-rearing when I might possibly sell it by the gallon? Well, much depends on the price per gallon the milk will realise, but we may take it for granted that the price from April till July will be a very small one—6d. per gallon or less. It, therefore, is the business of every farmer who at this time of year cannot make 6d. per gallon or more of his milk, to consider whether he cannot profit better by using it for the purposes of calf-rearing.

The great point in this question is the possibility of obtaining a sufficient supply of calves which will pay for rearing. We are sorry to say that a very considerable proportion of the calves dropped annually in England are of very little value for rearing purposes, for when reared they cannot be sold at a profit. It is very different, however, with a great number of calves which are produced by judicious breeding. Any such animals will always pay well for the food they eat. It is a common cry amongst farmers that they cannot go into a market and buy the cattle they want. If they do buy, they have to give more than they think they can afford. It is all a matter of supply and demand, and the purchaser wants either a very fresh bullock, or a promising heifer, or a cow approaching calving. The fresh bullock represents an early prospective sale at a remunerative price; the "in-calver" represents a milk supply either for human food or calf-rearing. Here we strike a great bone of contention, viz., the value of milk to the farmer, i.e., not for sale, but for home consumption, which can mean nothing else but calf-rearing; for we have amply demonstrated recently that the making up of butter brings in no profit during the summer period, and we doubt whether it realises a profit at any time.

We are supposing that a farmer was able to offer milk on rail from March to July at 6d. per gallon; would buyers be numerous? We are afraid not. Would it not be better to rear the calves which can be produced on the farm or bought from neighbours? There is one objection, and only one, to this system of the summer rearing of calves, viz., that, so many farmers attempting it, the competition is so keen that there is little or no profit.

Some may think so, but we notice that the price of yearlings is most encouraging to the holders of them, and if there is a class of farm stock which at farm sales realises satisfactory prices, it is the young cattle from twelve to eighteen months old; therefore, a farmer can afford to give a good price for a good calf. Until the reaction, which may soon occur, it behoves milk-sellers to work warily, and, as it were, from hand to mouth. Milk has been very scarce this winter, and correspondingly good to sell, but as soon as cows go out to grass the supply will be immensely increased, and unless some of it is diverted into other channels, it is inevitable that prices must fall.

We have found that a calf can be reared on a very small quantity of milk, especially if it feeds itself. We have had heifers which gave hardly enough milk to be worth milking, but would bring up one, or in some cases two, calves, and keep them in thriving condition. A calf begins to eat grass or hay when it is four weeks old, and the milk from the cow soon becomes but the foundation of the daily ration, the calf gradually increasing its diet of grass or similar food. It is very much the same with hand-reared calves. The daily allowance of milk may be gradually lessened until at three or four months it is entirely dispensed with, and if other calves can be obtained a second batch may be reared. As we have said before, the obtaining of well-bred, payable calves is the chief difficulty we have to contend with, and it is an excellent plan to establish communication with a reliable agent in one or more of our great towns, for dairymen rarely rear calves, and when one is born it is quickly sold to the first customer. An agent who can be relied on to bring the offspring of none but good dairy cows of size and weight may easily supply all the calves which even a very extensive farmer may require.

Veal has been very scarce and dear this Easter (we have heard of 1s. 2d. per lb being charged for nice cuts), so it would appear calves are none too plentiful. As we wrote a week or two since, there have been too many barren heifers this season. The most successful calf-rearers we know do not run their young animals on grass, but on seed pastures among their sheep. They sow a considerable quantity of ryegrass amongst their clover. This is most useful for the lambs in spring, and in summer makes excellent food for reared calves. Of course, calves require a supply of water, which is oftener absent than present in an arable field; but the quantity required for a dozen calves is not large, and a water cartload once a week will be sufficient, except in the very hottest weather.

Perennial ryegrass, which sheep generally allow to run to seed, makes capital picking for calves. It must not be forgotten that the use of a little corn-cake or similar food will be found profitable, both during the rearing period and later. It may be dispensed with, but its cost will undoubtedly be repaid by increased thriftiness, and the consequent saving of time and money afterwards.

Work on the Home Farm.

We are now favoured by drying winds with heavy showers, and although it is very unpleasant weather to be out in, the effect on the land is all that can be desired. The surface is in a fine state where the land has not been moved, and we see many fields being sown or drilled with a fine cloud of dust behind the drill or harrows. We are nearly through with our spring sowing, but the generality of farmers will be very late in completing this work.

Incidentally, we note that a great many oats are being sown, and the area under this crop promises to be a large one. The question of bedding for horses and cattle has something to do with this, for there being so little wheat sown, farmers have to consider the question of litter, and oat straw is a better substitute than barley straw for the wheat, which is considered by some almost indispensable. Barley straw makes good enough bedding, but is not so lasting as the others. For thatch wheat straw must be provided, and we shall have to be very economical of our old stock if we are to have any thatch at all for 1905.

Many farmers are turning their cattle out during the day to harden, bringing them into shelter at night. Where the grass land lies some distance off, this entails much trouble; but the animals must lie comfortable if they are not to lose ground. This is especially the case with yearlings in good condition. Every grazing pasture should contain a comfortable and roomy shed capable of accommodating every head of cattle in the field. Much money that has been spent on fancy buildings might have been invested to better purpose on sheds in the fields. They are always useful for horses in winter if they are not so much required in summer, but in very hot weather when the gad-fly is about, cattle can hardly be driven out of the shed if there is one.

An immense acreage of Potatoes is being planted. Notwithstanding disaster from disease and flood, the crop must have paid well, or farmers would surely hold aloof from further planting. We tried a dish of one of the new varieties the other day with very little satisfaction to ourselves, so we will mention no names.

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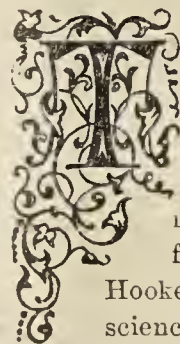
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Journal of Horticulture.

THURSDAY, APRIL 21, 1904.

Keeping a Diary.



TO state but a few of the advantages accruing from the practice of keeping a diary, there is primarily the cultivation of a habit of observation, on which mainly depends a gardener's success; for the limited statement of Sir J. D.

Hooker in his Primer—that "botany is a science of observation"—may be extended with equal truth to the whole range of practical gardening. Now, even the most observant man will find that his unaided memory cannot faithfully retain the vast and varied store of knowledge with which he is incessantly supplying it, and we need not wander far to discover a notable authority assuring us in his own concise yet telling style that "writing maketh an exact man," and further, "he that writes little had need have a great memory."

Unfortunately not all of us possess a great memory, and the overburdening it with a load of miscellaneous and disordered matter will tend rather to confuse and destroy what we already possess than aid in developing it to its fullest extent. By jotting down each day the work that has been done, we have in the following year a most useful guide which, if the weather be approximately the same, we can almost faithfully follow, and we then have the additional advantage of rectifying any shortcoming which may have been observed.

A well kept diary should reveal the period of seed-sowing, the time when plants were transferred to their permanent quarters, and the date of taking the first cuttings of the mature crop to the hall; and according as they are required earlier and later, in greater or smaller quantity, so may we alter the date and the amount, taking of course into due consideration the vagaries of the seasons. Of a certainty, the greater the number of years over which the diary runs the greater likewise will be the advantages, owing to the wider scope for comparison. In addition to the benefits bearing on our work, we have that most desirable quality—a love of method

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

nurtured within us, which is one of the chief requirements in the composition of a business mind.

Perhaps it would have appealed more strongly to those possessed of a conservative, or shall we say cynical, mind, if this leader had appeared prior to the New Year, so that they could have commenced their daily notes with the first day of the calendar; but no such sentimental argument need weigh with practical gardeners, for with them the year, speaking in a general way, can hardly be said to commence much before March, and it is most certainly better to start the task at an untimely period than to neglect it entirely.

In the first place, one need not advise that a ready-arranged diary be bought. In the shop diaries a given space is allotted for each day—it may be a page, or it may be only a few lines, this depending mainly on the price—but this arrangement is not likely to appeal strongly to the gardener, who may one day find the space allotted insufficient to contain the briefest synopsis of his work, whilst on the following he might be in the contrary position of being unable to fill the space.

Now, in turning over the pages of a note-book, we care not how lacking a man may be in method, he will certainly be ill-satisfied on finding numerous blank spaces, relieved at times by an undue overcrowding of words, so that, perhaps in his endeavour to keep within the specified bounds, the gardener will at some times be compelled to forego checking matters which it is most desirable to note, and at others he will rack his brains to find sufficient with which to fill the space, with the inevitable consequence that he will discontinue the endeavour.

It is principally, then, on the score of tidiness and convenience that one advises that an ordinary notebook be procured, of whatever size is considered most convenient, but preferably of a size sufficient to contain the record of two or three years. Of course, such a volume cannot well be carried in the coat pocket, nor is it so intended. In addition to this book, a smaller one should be kept in the pocket, so that all items of importance may be duly jotted down and transferred to the larger book at a convenient time. In no case should more than two days be allowed to elapse without jotting the work down in the small book, otherwise one is likely to forget to note small items which it is wished to remember.

Leave a margin of about an inch at the left side of each page. Into this margin may be allowed to project out the date, which may be underlined to thus render it more conspicuous than the text. Follow on, putting down each item of the day's work in as brief, concise, yet understandable language as possible. It is an excellent plan to have at hand inks of various colours, to wit, red, green, blue, and black, in which to underline or write any part of the diary which it is desired should catch the eye at a glance. For instance, in recording the compost used for a plant, that might be underlined with green, names of good varieties of fruits, vegetables, or flowers with blue, and facts which it is particularly desired to remember (such as the date of cutting the first Grapes) could be similarly treated with red ink. Number the pages as the work proceeds, and have at hand at each entry some notepaper on which to jot down the title of each subject dealt with, followed by the number of the page on which such an entry is to be found. This should, when nearing the end of the volume, be cast into alphabetical order, and will serve as an index, which, in conjunction with the prominence given to certain items in the text by the employment of coloured inks, should enable the owner to refer quickly to any matter he may wish to consult.

To render a diary a complete and useful record of the place, there are many facts, small in themselves, which should not fail to be noted. It is understood that all the leading horticultural work of the day should receive primary consideration, but this must not be permitted to wholly monopolise the space at disposal. There are other matters which it is almost equally important to record. Meteorological observations should as far as possible be duly noted, and, although there may be no facility for making them of an elaborate nature, it is possible to obtain the maximum and minimum of the thermometer and the amount of rainfall in nearly every place, also the general character of the day's weather, so that, in referring back over the diary, the relation of the weather to the operations performed may be clearly adduced. Other matters worthy of noting are the daily amount of produce taken to the hall; the amount, approximate or exact, of the fuel used, the heat maintained, periods of flowering, and fruiting of plants, trees, and shrubs, and endless other matters which will readily suggest themselves to those who are really interested in the work.

At the expiration of each year it is strongly advised that an analysis be made. This should be at once brief and exact, and should trace in general outline the career of each species of plant in monthly rotation, likewise the kind and quantity of manure used, the rotation of the crops, the average temperature and rainfall, and as far as possible the amount of seed sown and produce ultimately cut, and the extent of the labour expended on it. In itself this will be found a tedious and perhaps difficult work, but one at the same time highly calculated to nurture in

us a depth of thought, and a desire to plunge, as it were, beneath the surface of things; and, although the matters that have been named above may not be adduced with any real exactitude, it will readily be allowed that the more exhaustive our notes, so much the nearer will our deductions approach correctness.

The diary, then, should be made as copious and as extensive and complete as possible, and, if conducted on the lines which we have endeavoured to indicate, should produce order out of chaos, and form a volume on the gardener's bookshelf than which the best work written could not prove more useful; for while the latter must perforce deal with culture under general circumstances, the diary is limited in its application to the particular place, in which the conditions of weather, soil, &c., will be much the same in subsequent years, and hence call forth similar methods of procedure.

It has been our wish to point out the advantages accruing from the simple practice of diary-keeping, and to exhort those who have hitherto overlooked this means of enlarging and classifying their knowledge to take it up at once, and though it will seem irksome for the first few months, that feeling will in time wear off, and, having once covered a year in this way, we are confident no gardener, young or old, will discontinue it.

An Irish Agricultural Problem.

In a recent run by rail to the heart of Ulster, which, to let loose a rather fine specimen of the Irish bull, is the backbone of Erin, it was a surprise—a painful surprise—to find how bare that backbone was picked of its thews and muscles, for it was chiefly the aged who were in evidence on that land that ideal day for delayed operations, and those few and far between. Grand stretches of agricultural country lay for miles on either side until the Mourne Mountains of the County Down loomed up in the near distance, and the pleasantly fertile (or should be) gave way to the sterile picturesque.

Grandly picturesque as are these Mourne Mountains, they appeared to us in their still loneliness as mournful monuments of a decaying race; for—

The peasant whose lot was to sow and to reap,
The herdsman who climbed with his flock to his steep,
The beggar who wandered in search of his bread,
Have faded away like the grass that we tread.

A closer inspection of the country beyond the mountain chain, with the addition of some conversation with the inhabitants, rather heightened than dissipated the idea. Although no longer a stranger in the Green Isle, here to us was a new country and a new people. That it is not a land flowing with milk and honey goes without saying, but thrice blessed as it is with distinct climatic advantages, ready and rapid means of transit by rail, road, and canal, and direct communication with several seaports, how it is that the soil should bear such unmistakable signs of poverty is an economic problem surely worth the endeavour to solve. Good farming here apparently does not pay, and starvation of the land and the people, the latter advisedly, cannot but be painfully unprofitable.

From the people no complaints were elicited, for these hardy northmen of Scotch descent, and of the old Covenanter type, are not given to garrulity. One ancient workman was asked how things were going, and "Bravely" was the shrewd reply; still another, and it was "Bravely"; and that sums up the stoical endurance of the hardy race. The wages of each were nine shillings per week, and the maximum rate of agricultural wages in this little corner of the great Empire is twelve shillings weekly. It is not a thriving wage for, paradoxically, a thrifty people. And so the world—the farming world—wags in Ulster, with at rare intervals an outburst of unquenchable patriotism and fervid loyalty in vigorous marching, fifing, and drum-tapping.

Farther north is—well, the North Pole, of course, but Belfast, the centre of the great linen industry, is far enough for our purpose, and that is to mention that its staple trade is now threatened with the competition of cheap imports from Germany. We have no desire to introduce either political, religious, fiscal, or any other polemical questions, but we have it from one who is better acquainted with the latter than our hardy Northmen "go straight and true for Mr. Joe's policy." However, whether that does or does not contain the elements of a solution to this agricultural problem, we dare not surmise; but whilst honestly believing there is life in the old land yet, there are not wanting outward and visible signs that it is slowly but surely ebbing away, and

A bold peasantry, their country's pride,
When once destroyed can never be supplied,

—K., Dublin.



Odontoglossum × Waltoniense Rosefieldiense.

Mr. de Barri Crawshay, of Rosefield, Sevenoaks, Kent, staged the plant here figured at the meeting of the Royal Horticultural Society on March 22, and an award of merit was bestowed. It is an attractive variety with pale-tea coloured flowers, the middle part of the petals being almost white, and a double brown dot marks the centre of each of the sepals. The lip bears a brown blotch with fringed edge, and is yellow under the column.

Orchid Culture for Amateurs.

The beginner in orchid culture would be safe to commence in the spring, and the plants will get a good start by the winter. All plants when bought and received should be sponged, stem and leaf, to free them from dust and eggs of insects, which are sometimes found upon newly-imported plants. Decayed parts should be cut away. Then lay the plants on sphagnum moss, or get pots, partly filled with broken crocks, and place the plants in them. For Cattleyas, Lælias, &c. (top-heavy plants), this plan is good. Although some orchids root in almost any material, leaf-soil, loam, and close earthy peat soon gets stagnant and sour, and should be avoided. Clean sphagnum moss, clean pots, clean crocks and charcoal; these are necessary. Epiphytal orchids should be elevated above the level of the pot, pan, or basket, to guard against water settling and injuring the young growths. Terrestrial orchids should in most cases be potted below the level of the pot, with care in regard to the drainage. Most orchids need rest, and some require to be taken from their growing quarters to cooler houses to induce them to flower. When kept wholesomely dry, orchids will stand, at times, very low temperatures. More harm is done to them by heat than by cold. To drive a boiler is worse for the plants than dry coolness. The warmest end of the house will suit the tenderest sorts, putting the cooler types nearer the entrance door. Patience is needed, and flowers must not be expected all at once.—X.

Mr. de Barri Crawshay's Odontoglossums.

Mr. de Barri Crawshay, of Rosefield, Sevenoaks, Kent, is an ultra-specialist among orchidists. First of all he is an ordinary specialist in one genus (Odontoglossums) and in part of another (the Mexican species of Lælias); but he is an ultra-specialist in Odontoglossum crispum and its innumerable forms. He is constantly buying batches of imported Odontoglossums at the sale-rooms in Cheapside, and these he cultivates until they flower; whence, retaining the gems and discarding the worthless, he gradually increases what is now known to be a rich and valuable collection of handsome varieties. But, while he consistently introduces natural plants from the imported stocks and finds unceasing pleasure in tending and testing these, he is not satisfied with that, but has for years been a hybridist and cross-breeder with much success. Visit his place on any occasion, and hundreds of seedlings in tiny pots may be seen on one side of a span-roofed house. Each plantlet in its cosy bed of sphagnum furnishes a thumb pot, which in its turn is placed within a 3in pot, so that there is a small air-space between the two. These small pots are set on an ash-covered stage, and large sheets of glass are fixed almost vertically from the roof to the front edge of the stage, and form what is practically a case. The sheets of glass are movable, and narrow spaces are left between each for the circulation of air. Finding that a certain small black fly is injurious to the well-being of the seedling orchids, Mr. Crawshay

uses Nature's trap by the inclusion of some Butterworts (*Pinguicula caudata*), whose viscid, succulent leaves were seen to be covered with the captured insects.

The Odontoglossum houses are only three in number, but they are span-roofed, and one is of very considerable length, while another contains a large central stage. Thus thousands of plants are housed, and the collections are constantly being changed by the incoming and outgoing of plants. Wooden spar staging above a bed of coke is used throughout, and, as a coat of varnish is found to be more economical, more cleanly, more enduring, and retain a better appearance than paint would, one finds that these spar-stagings are mostly varnished. Paint oxidises and becomes rusty where the atmosphere is humid, but, from what could be seen here, the varnished boards remain fresh, and are easily kept clean. Beneath the central stage in the large span-roofed house a layer of half-decomposed leaves is kept, and by damping this there arises a natural vapour, which must have an important effect on the health of the plants.

By way of top ventilation in the long span-roofed structure, the owner contrived to make a lantern-ventilator with a wooden bottom having movable spaces, which regulates the ingress of air.

While the plants are, of course, mostly grown in the ordinary pots, a few—only a few—are cultivated in glass-pots, and more than one find sufficiently comfortable and healthy quarters in jam pots and salt jars! But let me hasten to add that the cultivation of Odontoglossums in salt jars having no drainage-holes was first attempted to prove that it *could* be done. The glass-pot culture is of interest, and though one would have thought that the roots would suffer frequent sudden chills, which does not occur in earthenware pots, yet, upon the assurance of Mr. Crawshay, moribund plants have recuperated and grown apace when transposed from clay pots to those of glass! It was observed that none of the roots clung to the glass, nor were any protruding over the rim, whereas in the ordinary receptacles the roots intertwined like the veins of one's hands.

A feature worthy of adoption was that of having dwarf potteryware pedestals upon which to place the larger plants and raise them above the others. As a rule similar pedestals are made of wood, or inverted pots are used. In some of these a shallow tray for water was joined to their base.

It was in 1880 that Mr. Crawshay began this pet hobby of orchid

culture, and he can still show the first plant he purchased. "Here it is," he will say, "a miserable weed, not worth 'tuppence'; but I would not accept £100 for it." The species other than *O. crispum* which have found quarters at Rosefield are luteo-purpureum, gloriosum (now always discarded), triumphans, Uro-Skinneri, Lindleyanum, and Harryanum; and Mr. Crawshay possesses at least two magnificent varieties of *O. triumphans*, namely, Lionel Crawshay and Raymond Crawshay, and the scarce albino form of *Uro-Skinneri*. *O. t. Lionel Crawshay*, with twelve flowers on a strong raceme, is without doubt the finest form up to the present time, and it has been said of it that "it is as much superior to all triumphans forms as *F. K. Sander* is superior to all the crispums."

In the nomenclature of varieties placed before the Orchid Committee of the Royal Horticultural Society for certificate, Mr. Crawshay adheres to a plan. He has five names he utilises: 1, his own; 2, his wife's; 3 and 4, that of each of his two sons; and 5, the name of his house; and the sequence of them here is approximately the general order of merit of the varieties according to Mr. Crawshay's estimate. Thus the Crawshayan introductions are hall-marked and standardised.

But sufficient has been written

for the present. I have said nothing of varieties, because few were in flower at the period of my visit; but these few reminders of an excellent collection, which has been previously reported upon in our pages, will serve to quicken the interest of those readers who may occasionally see this gentleman's name after varieties that have been certificated at the Drill Hall. Mr. Crawshay is out and out an



Odontoglossum × Waltoniense Rosefieldiense.

enthusiast, keeping full and accurate records of his own crosses and certified varieties, as well as those of every other *Odontoglossum* grower, a work which keeps him busy. He has a large collection of blooms, which were dried in sand, thus preserving the form and the features of the markings in each bloom, while his photographs of "*Odontos*," are endless.—J. H. D.

A Handsome *Sophronitis grandiflora*.

The finest form of this exceedingly beautiful dwarf orchid seen by us is in the possession of Mr. Crawshay at Rosefield. The flowers are much larger than those of the type, are of better shape, have more substance, and are far richer in colour.

Odontoglossum crispum xanthotes Cooksoniæ.

No finer orchid was seen in the Drill Hall at Buckingham Gate on Tuesday than this, which came from Mr. N. C. Cookson, of Oakwood, Wylam-on-Tyne. The flowers are of the purest white, stout, rounded, and close, with bright yellow lip edged white.

Odontoglossum cirrhosum, Pitt's variety.

Such an excellent variety and greatly improved form as this deserves the high award it received at the meeting of the Royal Horticultural Society on April 5, viz., a first-class certificate. It had previously been accorded an award of merit, and having proved to be constant at the second flowering, this higher award was given. The owner is Mr. H. T. Pitt, of Stamford Hill, N., whose *Odontoglossum* collection includes some of the choicest varieties in the country.

Anguloas.

"If Anguloas require repotting, let them be done before the new growths and flower buds, which appear together, get too far advanced," says the "*Orchid Review*." "A compost of two parts each of fibrous loam and peat to one of moss, with an addition of some broken crocks and coarse sand, well mixed together, will be found suitable. They are cool-house orchids, but when newly potted it is best to encourage new growth by placing them in the intermediate house, where they should remain until flowering, afterwards removing to the cool house again."

Cultural Notes.

Shading is daily becoming more a necessity in the orchid houses, but in some instances it is overdone. As soon as the sun reaches the house in the morning the blinds are run down, and there left until closing time in the afternoon. This is quite wrong, the light being as necessary to orchids as heat and moisture, and growths that start under such unnatural conditions cannot fail to be weak and unsatisfactory. In many instances, of course, the amateur orchid grower has to leave his plants for the greater part of each day to the more or less tender mercies of someone else, and his case is a hard one; but where one is about the place all day there is no excuse for inattention to shading.

Where the house is ventilated early in the morning, and the aspect is an ordinary one—say a span-roof, running north and south, or thereabout—there should be no need of shading during the present month until between 10 a.m. and 11 a.m. Frequent damping of stages and floors, and a gradual increase of air circulation, so cool the atmosphere that the foliage does not get hot or likely to scald. After being a few minutes in the house the hands are sufficiently sensitive to be able to gauge by touch the condition of the leaves, and when they are appreciably warm to the touch, then lower the blinds. Leaves fully exposed must, of course, be selected for the experiment.

In the coolest house, where Disas, *Odontoglossums*, *Masdevallias*, and kindred sorts are grown, the reason for shading more heavily is not so much on account of the foliage as a means of keeping the temperature down. Still, even here a little air left on all night and copious damping of the dry surfaces about the house should enable the cultivator to keep up the blinds until 10 a.m. at least when bright, and longer when comparatively dull.

Small block and basket plants suspended near the glass will dry far more rapidly now than they have done since last autumn, and must be daily examined. They will not, of course, all need water every day, but there will daily be some needing it. Although the advice has frequently been given, I am again tempted to remind beginners of the danger of watering these plants in dribbles. Take them down when they are dry and thoroughly soak them; then allow them to remain until quite dry again. A day's drying never yet hurt a healthy orchid; indeed, it often does good; but plants that are never really wet or dry all through cannot possibly be satisfactory for long.—H. R. R.

Aralia filicifolia.

Among the stove species of *Aralias* the one we figure takes a leading place by reason of its graceful character and vigour. The plants have purple stems spotted with white, the leaves being green, with purple midribs. This species was introduced from one of the South Sea Islands in 1876.

The Resting of Plants under Cultivation.

In the gardens of to-day we find plants that have been collected from nearly every part of the earth, and it is extremely difficult for the cultivator to keep them all in good condition, owing to the widely different climatic conditions under which these plants live in their native homes.

Now, in my opinion, it is not during the growing season that we are so liable to lose our plants through improper treatment, but during the resting season, or when the plants should be at rest. It is then that we are the more likely to weaken or kill altogether the more difficult occupants of our plant houses and gardens, through not understanding or not being able to treat them according to their several requirements. These necessary changes in our treatment of them may be a higher temperature or perhaps lower, or it may be a greater or lesser quantity of water, or it may be a consideration of ventilation or some combination of these agents. Another point is that when a good many plants are at rest they are sometimes forgotten for the time, especially if they lose their foliage and can be stored away where one's attention is not often directed.

Nearly all plants have a resting season during each year, in some cases of only short duration, in others the rest occupies a quarter or nearly half the year, and the various ways in which many classes of plants obtain their rest should claim the attention of the cultivator with as much importance as the growing season. Concerning the more difficult subjects, it is to the benefit of the cultivator to try and find out the conditions under which they live in their native homes, and at the same time make a study of the characters of the plants themselves. These characters are partly inherited and partly adaptive, and the important part is that they suit the plant more closely to the circumstances under which its life is carried on in nature, and to the practised eye the characters of a plant reveal to a certain extent the treatment most likely to lead to success. I do not assert that the cultivator can always treat them as Nature does, but his knowledge of the natural conditions, coupled with the study of the characters, should act as a guide in their treatment under the more or less artificial conditions of our gardens, plant houses, and climate.

If we remove a plant to a region of different climate it does not at once destroy its natural season of rest and growth, which are hereditary, and which we can all see in our plant houses, where plants from the southern hemisphere continue to flower during our winter months, corresponding to the southern summer. But some plants are not unalterable in this respect, as a great many foreign plants have been introduced, which have become acclimatised, and grow exceedingly well, especially if the change from their native climate is not too marked. We also find that a great many foreign plants will grow out of doors in our gardens if we place them where we can control the conditions of their resting season by protection from excessive moisture or cold, or in some cases both.

Attention may now be drawn to the widely different climates in different parts of the earth. In temperate regions we have a fair amount of rain the whole year round, which no one will dispute concerning last year, therefore our native plants do not rest as a rule by being kept dry, but their rest is determined by the lowering of temperature, vegetative activity ceasing in autumn, to be resumed in spring. In subtropical climates, such as that of the Mediterranean region, the interruption of vegetative activity is when the heat is great and the drought extreme, which means that a long dry period is the resting season of the plants. In tropical climates proper, even where in certain parts the weather is comparatively uniform, most plants show a tendency to form new leaves and to flower at certain periods.

I have stated above that the characters of plants have been determined to a certain extent by the natural climate, and so each plant has a means of preparing itself for its resting season, whatever that may be, and I will now endeavour to point out, under certain groups of general characters, some of the chief things to consider when resting them under cultivation.

ANNUALS.

These in one respect may be said to rest in the same way in all cases, by the production of seeds, which, if properly matured, will carry the species through the period unfavourable to growth. These seeds are produced with special adaptations in relation to the nature of the climate and situation through which they have to pass during the resting season. The resting season, then, in the life history of an annual, is the time between the ripening of the seeds and their germination. In xerophytic (dry land) regions, annuals are very plentiful; but

they exist only as seeds during the season of drought, whilst, on the other hand, in temperate regions the seeds as a rule lie dormant during our cold and wet winters.

Now, providing we find they do not take kindly to the seasons when we would have them in any certain stage of growth, we find it necessary to note by reference to their conditions in Nature, whether it is best to sow them at once, and therefore rest them under conditions of moisture and heat with tender plants, or in the case of hardy annuals conditions of cold—or to keep them dry until a more favourable season has arrived. The storing of those seeds which have to be kept is important. A fairly cool, dry place seems to suit most seeds; even seeds of tropical plants seem to degenerate in quality if kept in a high temperature which is obtained by artificial means.

HERBACEOUS PERENNIALS.

Under this heading we class those plants which do not possess any woody stem above ground, but are made up of softer tissues,

will keep in good condition in a shed where the frost is just kept out, and where they can be kept fairly dry, but not dry enough to cause shrivelling of the roots or tubers.

This is prevented to a great extent by covering the roots with old potting soil or ashes, and which also helps to keep out the cold. Under these conditions the young growth in spring is much stronger and healthier than is the case if they have been rested in a higher temperature, and will have suffered too severely from drought, or perhaps have made an attempt to grow before their proper time, and produced weakly shoots. As spring advances, a little heat is necessary to encourage young growth to prepare the plants for their summer quarters, or from which a stock of cuttings are to be taken to replace the old plants. With the more tender plants of this group, we find a great many have tuberous roots or fleshy rhizomes, and can best be treated with the bulbs.—E. J. ALLARD, Cambridge Botanic Gardens.

(To be continued.)



Aralia filicifolia. (See page 336).

and usually die down to the soil in autumn or after flowering; but it is difficult to draw the line between herbs and shrubs. The Wallflower, for instance, may produce a stem which at the base becomes woody and persistent. In the flowering plants, i.e. Angiosperms, the majority are herbaceous, and are most common in the temperate zones.

The resting season occurs at regular intervals, either in winter or the dry season in hot countries. It is therefore necessary that there should be a storage of reserves to enable the plant to recommence its growth on the return of spring or the rainy season. This storage is usually made below ground, where it is well protected, and may be in the root, stem, or leaves. The part in which storage is made is more or less swollen, and if it includes a bud, is usually made to serve the process of vegetative reproduction.

As regards the hardy ones, they more or less take care of themselves during the resting season, but there are a great many which are valuable in the open garden in spring and summer which are not able to withstand our winters, and so have to be protected in their permanent quarters from cold and wet; whilst others have to be taken into sheds or greenhouses and their welfare considered. The majority of these, we find,

A Natural Bog Garden.

While taking a walk in the evening, I accidentally came upon a beautiful bog garden. It was situated at the bottom of a wood, with a grassy bank leading down to it. The bank, by the way, is worth noticing, as it was thickly dotted over with the blue Scabious, *Scabiosa succisa*. (Why is this pretty blue flower called the Devil's-bit?) On the outer edge, near to the wood, were a number of plants of the broad-leaved *Epipactis*, *E. latifolia*. Less showy plants in the bog were the Bogbean, also named Buckbean, or Marsh Trefoil; several common Sedges; the rather curious Cotton Sedge (*Eriophorum polystachyon*), the flower heads of which resemble a bunch of cotton, and several others. The plants that gave beauty to the garden, however, were *Epipactis palustris*, or Grass of Parnassus. There was a great quantity of the latter, the flower stems of the other two showing well above them. *Epipactis palustris* is a more showy plant, *E. latifolia* having larger and more pretty flowers. *Habenaria*, which is sometimes found under the name of *Gymnadenia*, is a very pretty orchid, having tall stems bearing bright pink flowers, with long, slender, curved spurs, and is sweet-scented. The Grass of Parnassus, which only attains a height of about nine or twelve inches, has rather large white flowers and shining green leaves.—J. S. U.

County Council Instruction: Horticulture.

Worcestershire.

Horticultural instruction in the County of Worcester has considerably extended since its commencement. The county is divided into about 150 districts, and these are grouped so that each group may be visited during one week. Private instruction and advice is given on the occasion of these visits to allotment holders, cottage gardeners, market gardeners, farmers, and others upon the culture of flowers, fruit, and vegetables, and the general management of orchards.

Demonstrations are given in grafting and pruning, and lectures upon general horticulture: its theory and practice. In addition, there is a small experimental garden at Droitwich, where many experiments are in progress, and where youths and others receive instruction in pruning, grafting, and budding; and there are eighteen centres where 273 youths have during the past year received instruction in the cultivation of vegetables and hardy flowers.

Such, briefly, is a statement of the extent of the horticultural work accomplished under the County Council by Mr. James Udale, assisted by Mr. Joseph Lansdell. The following will show some of the other work done by the instructors. Visits have been paid as under:—

To allotment fields	...	...	...	2020
„ cottage gardens	...	...	...	1073
„ market gardens and orchards	...	...	...	579
„ other gardens	...	...	...	302
Total	...	...	...	3974

A large correspondence is also carried on, many inquiries being made upon various horticultural matters, such as the planting of an orchard, dealing with the American blight, or disease among Tomato plants, the Turnip-fly, growing Daffodils for market, treatment of young Strawberry plants, of Ixias, of Onions affected by insect pests, and of a neglected garden. Mr. Udale further reports: "In June and July (1903) Mr. Lansdell and myself made our annual inspection of allotment fields in 148 districts, and I am glad to be able to report distinct improvement generally, notwithstanding the very adverse season. Cottage gardening societies such as those at Tenbury, Bockleton, Hagley, Clent, Pedmore, Bournville, Coomb's Wood, Aston Fields, and Selly Oak do much to promote high culture of the soil."

We have not the space at command to follow the details of the year's work by the two gentlemen named, but the results of their instructions to boys, to allotment holders, &c., and of their observations and experiments in the garden at Droitwich are fully and succinctly set-out in the reports just published, and which Mr. Udale, we believe, would be pleased to send to anyone who is really interested in the work. Fruits, vegetables, and flowers are grown, and admirable reports bearing upon each subject are drawn up.

Having briefly, though imperfectly limned the outline of this technical instruction, a notice of the chief instructor, Mr. James Udale, must be of interest, and we publish his notes as they were written.

Mr. James Udale.

I commenced my gardening career in May, 1865, at the age of fifteen, and my apprenticeship was served at Oldfield Hall, Uttoxeter, under Mr. George Chitty, who was an excellent landscape gardener. Under his skilful guidance and energy I received a thorough grounding in practical designing and planting during a period of three years. During this period I had the good fortune to obtain the friendship of the late Mr. Thomas Rabone, of Alton Towers, but who then was gardener at Woodseat, where he grew what were then some of the best Grapes in England. Moreover, in 1866, it was my equally good fortune to form the friendship of Mr. E. T. Gilman, of Alton Towers and Ingestre. Mr. Gilman being then a pupil of Mr. Rabone's at Woodseat. Chiefly through the recommendation of Mr. Rabone I obtained an appointment at Garston Vineyard under the late Mr. Joseph

Meredith, who was then (1868) in the zenith of his fame, and your esteemed correspondent, Mr. William Taylor, was foreman. Only those who had personal acquaintance with Mr. Meredith and Garston Vineyard at that time can form an approximately accurate idea of the conditions of work there, and of the high standard of culture aimed at and attained. Morning duty began at 4 or 4.30 to 5 a.m. Night duty was not supposed to end at any time before midnight; and when, in a certain department, there was a constant change of young men every five or six weeks, the night duty, morning duty, and Sunday duty did not constitute exactly a holiday for the young men who were comparatively "fixtures"! One year at Garston was sufficient for me, but I have always looked back with satisfaction at that period of long hours and hard work, because there was not only the unique experience acquired of Vine culture, but many other things were done well.

Workshop Manor was my next destination, where I spent two years as improver under the late Mr. John Miller, who served the family of Lord Foley so long and so honourably. There I had general experience in all departments; but the larger part of my time was occupied in attending to the decoration in the house, attending the conservatory and flower garden, and in training and nailing the Peaches, Apricots, Nectarines, Plums, and Pears upon the extensive walls.

I then had a brief sojourn at Veitch's Nursery, from whence I was sent as foreman to Lilleshall House, the Duke of Sutherland's seat in Shropshire. The flower gardens there are rather extensive, and at that time required about 30,000 bedding plants each summer. Nearly the whole of that number were propagated in hotbeds, and in no place have I seen such number of plants so propagated, and never more successfully. After a sojourn of two years at Lilleshall I was engaged as gardener to Sigismund Cohen, Esq., Manchester, in whose service I spent two very happy years, and who always treated me more as a friend than as a servant. But several importations of orchids from Brazil fired my enthusiasm for a larger knowledge of plants generally, and after very careful consideration decided to apply for admission into the Royal Gardens, Kew.

In due course I was notified to proceed to Kew, which I did at the beginning of 1874, though I left my very kind and generous employer with reluctance. I soon settled down to



Lupinus polyphyllus albus. (See page 340)

work and study, paying special attention to the things I had resolved to know more about. While here, experience was gained in the Palm-house, the orchid-pits, the Cactus-house, Heath-house, and latterly in the conservatory.

In addition to attending the various courses of lectures, I compiled catalogues of all the palms, orchids, ferns, succulents, creepers, Begonias, plants in the stove and in the Temperate-house growing at Kew at that time, and a large portion of the occupants of the herbaceous ground; and, as all the names are arranged alphabetically—though taken down at random, or as they came before me—they were written three times over, and the native habitat written opposite to each name. Though I sacrificed a considerable sum of money in going to Kew, it proved a good investment, and I look back with very much pride and satisfaction to Kew and its memories and associations.

I was now offered the appointment of head gardener to Sir Henry Watson, Shirecliffe Hall, Sheffield, with whom I stayed ten and a half years. He was the best of masters, and a true friend to me to the day of his death. He was very fond of flowers of many kinds, and he had the wisdom to grow a large quantity of each kind of plant he liked, and to provide means of growing them to be among the best examples of their kind. Roses, Lilliums, Chrysanthemums, Azaleas, Camellias, select orchids, Gloxinias, Pelargoniums, ferns, palms, bulbs, were special favourites, and a glorious show of each was produced in due succession, beginning with bulbs and ending with Chrysanthemums. In addition to the foregoing, there was a large collection of miscellaneous plants.

In the beginning of 1886 I was appointed head gardener and general manager of the Elford Estate, including the woods. This is one of the prettiest and most compact estates in the kingdom, though small—only about 3,000 acres. The kitchen garden is famous for its Holly-hedges in double lines in the form of a cross. After a short interval I was appointed to my present position in 1891.

Changes and Chances.

The gardener is a migratory individual, and passes through various experiences in the course of his professional career. Not that he is naturally of a more roving turn of mind than the majority of men, but the very nature of his calling compels him to move from place to place, at first to gain experience, and later on through force of circumstances, or because he is impelled by an ambitious desire to climb higher up the ladder of his profession. He is a person who knows the meaning of the word chance as well as most men, and is always aware of the possibility that he may have to make another move at any time, perhaps through circumstances over which he has no control whatever.

Dame Fortune is by no means consistent in the way she treats gardeners. She places one in a comfortable position, where he stops for the remainder of his working days, and another, perhaps just as worthy, she tosses about from place to place, and never allows him the privilege of feeling settled. In short, the whole thing is a lottery, in which some draw prize tickets and others blanks. Of course, it must ever be so, because the fact remains that the private gardener, whatever his qualifications may be, is a luxury, who provides for the personal and dispensable wants of an individual, and there are a thousand and one reasons, which need not be gone into, why the services of the gardener have to be dispensed with, and he finds himself in the position of having to make another start elsewhere.

Looking at the life of the average gardener, it will be admitted that he has a rough and tumble career as a rule, and very often plays the part of shuttlecock to Dame Fortune's battledore. He generally begins at a safe place, i.e. the bottom, and enters the pot-crocking stage of his career, sometimes with the intention of being a gardener eventually, and sometimes with no fixed idea at all, for the occupation of gardening is all doors, which are open to all sorts and conditions of lads. This is the pity of it, and if the proposed Gardeners' Association comes to anything, it is to be hoped that one of its efforts will be to put a check on the system by which so many youths are brought up to be gardeners without having any particular inclination or adaptability for it.

It is an epoch in the life of the future gardener when he first enters the portals of a bothy, and receives his initial charge. Whatever may be said for and against the bothy system of training gardeners, it is at the outset, as Mr. Pickwick said of the elder Weller's method of bringing up the immortal Sam, risky, and even at this early stage the youthful gardener is the victim of chance, for in the bothy he may meet with companions who will help to mould his character for good, or they may influence him for evil.

Generally speaking, however, bothy days pass pleasantly enough, though the mode of living is rough and ready. There

is a sense of freedom about it, a satisfaction of being their own master outside working hours, that youths like to feel, and at this stage the young gardener lives from day to day, leaving the future to look after itself. It is generally understood that no one establishment, no matter how good and well-equipped it may be, can provide a young man with the experience required, so after a year or two he begins his migratory career, serving first in this garden and that, till he begins to think the time has arrived for him to have a head place. He has left impressions as he has moved along, either good or bad, and has gathered some.

In after years the probationary periods spent here and there become pages in the book of his life, to be remembered and lived over again in fancy. Gardeners are not without sentiment, and it is no uncommon thing for staid middle-aged practitioners to spend their brief snatches of holiday in visiting the establishments where they received a part of their early training.

Young men meet and drift apart in bothy life, and some go up, whilst others go down. I often wonder what has become of the young fellows I have met and known in bothies. Some few have got well up the ladder, others I hear of at times, but the



Mr. James Udale.

majority I have got out of touch with, just as one does when the trunk is packed, and one passes from one sphere of labour to another. There is a good deal of character, too, within the four walls of a bothy, and one rubs against studious men, musical men, quiet men, demonstrative men, ignorant men, and men of culture. You have to take them as you find them; but if one youth has a weakness for the German concertina and another a capacity for cooking, commend me to the latter.

But bothy days fleet along, and with his first head place the gardener enters on a new epoch. Perhaps he gets it without much trouble, perhaps he has to wait so long that he begins to wonder whether the end justifies the waiting and the probation-ship, and then, when it comes it may not be what he anticipated; but this, again, is where the gardener has to take his chance. Now and then you meet with gardeners who have only had one head place, and have never had need to seek another; but they are exceptions, and the things that make all the difference, like deaths of employers, changes in ownership, and reduction of establishments are the cause of gardeners having to pack their goods and seek fresh spheres of labour.

While youth is on his side the gardener may cope with these uncertainties, but when he comes to be on the other side of middle age, and the chance comes which robs him of his situation, he realises how keen competition is, and what the chances of the elderly gardener are. On the other side, it must be remembered that gardeners may be the victims of their own folly, and many a man in losing a good situation has no one to blame but himself. It is surprising, too, how quickly men drop out of the ranks, for as head gardener at such-and-such a place Mr. So-and-So is well known, and receives much attention, but when he ceases to fill that position he becomes a unit in the crowd, and if fortune deserts him he is soon lost sight of.

A word over the dinner-table will sometimes give a gardener one of the plums of the calling, and I contend that the man is fortunate. Mind you, the word over the dinner-table will not keep him in the place when he has got it, and this is where merit

has to come in; but it gives him the chance, and chance is what hundreds of good gardeners are waiting for to-day.

It is very easy for those who have got to the top of the ladder (and all credit due to them) to say that there is plenty of room up there, and every man is what he makes himself; but the ugly fact remains that there are more good gardeners than there are really good places, and Dame Fortune in her shuffle of the cards does not deal trumps all round. It is not the man who has succeeded that wants a pat on the back and a word of encouragement, but he who is trying to succeed and is waiting for the opportunity that will give him the opening.

Still, gardening possesses many fascinations. It is interesting and healthy, and presents possibilities. Just as Napoleon said that every French soldier carried a marshal's bâton in his knapsack, so may any garden boy now engaged in the elementary occupation of pot-crocking one day preside over a pretentious establishment; but it is just as well to remember that they can't all do it, any more than every one of Napoleon's privates could become marshals of the empire; so that gardeners must ever contend with the changes and chances that are inseparable to the occupation.—G. H. H.

Hardy Plant Notes.

Brodiaea uniflora alba.

Perhaps the better known name for this dazzling white little Star Flower is that found in many catalogues, namely, *Triteleia uniflora alba*, but in this case *Brodiaea* is simpler, and this genus is certainly more widely known in gardens than *Triteleia*. *B. uniflora* is a "bulbous" plant from Buenos Ayres, and which blossoms during this month and next in English gardens. The flowers are lilac blue, and *alba* is a variety from it. It should be planted and left undisturbed for some years.

Lupinus polyphyllus albus.

This is a very handsome white variety of "the old-fashioned garden Lupin," i.e. *L. polyphyllus*, and bears the character of the latter in all respects except in the colour of the flowers. *L. polyphyllus* has blue flowers, and *albus* has white. Both grow to a height of 3ft. and blossom during June. Planted now, the plants will quickly establish themselves and flower this year. One of the best of the white tree Lupins, which one can hardly refrain from naming, is *Snow Queen*. It is of great value for cutting.

North American Foliage Plants.

Foliage plants suggest the inhabitants of the stove and other plant-houses, or perchance applies to the open air subjects, the tremendous Gunneras. Nothing of these kinds exist in the northern regions of the great West Continent, although in her woods there exist many charming subjects that through the depth of winter retain their red and green. Conspicuous amongst those that love our climate as well as their own are *Shortia* and *Galax*, both plants of great value. They exist usually in a miserable, isolated condition up and down the country as "Alpines," a name which somehow or other effectively keeps them away from some gardens.

Both will grow where *Rhododendrons* thrive, and they form admirable edgings to beds elevated to the choicest kinds of these and other peat-loving plants. The *Galax*, imported leaves of which are used in London for wreath-making, has almost round leaves in its largest variety, *Galax aphylla major*, and these reach under ordinary conditions four inches across, each supported on wiry stalks about the same length. The ordinary *G. aphylla* is smaller than the above. Both thrive in shade, and both also in sunny positions if a peaty, moist soil can be provided.

In the case of this plant and also the *Shortia*, the more exposed to the light they are the finer will be the red colouring that, creeping along the edges of the *Galax* leaves, sometimes diffuses their whole surface. *Shortia galacifolia* is still more beautifully coloured, each leaf being conspicuously red, relieved by the light green numerous veins. Planted in scores at Edinburgh, its winter effect is good. It revels in peat, and perhaps needs more careful attention than *Galax*, which is not so particular as to soil.

The *Shortia*, which was for nearly a century a lost plant in America, scores over its ally, the *Galax*, with its profusion of spring flowers, which are bell-shaped and white, with a tinge of rose. *Galax* flowers are whitish, but very small, and produced in long spikes that give to it the name of Wand Plant. The texture of the leaves of both of these good plants resembles that of the *Mahonia*, which is, of course, a very fine-foliaged plant, or rather shrub, and would be much appreciated if it did not grow here with the freedom of an indigenous plant. It is a North American, too. *Shortia uniflora*, of Japan, and *Schizocodon*, also from the same land, have equally charming, persistent leaves, but are at the present difficult and expensive to obtain in proper quantities.—D. S. FISH, Edinburgh.

NOTES & NOTICES

Change of Address.

The address of Mr. S. T. Wright, garden superintendent to the Royal Horticultural Society, after April 23 will be R.H.S. Gardens, Wisley, Ripley, Surrey.

Cinerarias from Forest Hill.

We have received from Messrs. John Laing and Sons, of Forest Hill, S.E., some specimen flowers of varieties of the florists' *Cineraria*, which are meritorious in size and substance and the richness of their beautiful colours.

Richard Dean's Nursery, Hounslow.

The Primrose nursery of Mr. Richard Dean, V.M.H., on the Bath Road, and only a few yards from Hounslow Barracks Station, is now very gay with seedling Primroses and Polyanthus. The plants are exceedingly floriferous, and some exceptionally good varieties are noticeable.

Tomato Blight.

Tomatoes are subject to a blight which affects both the foliage and the fruit. Bordeaux mixture is excellent for these, and it should be applied soon after the plants are placed in the ground, and again at intervals of twelve days, for two or three times. Tomato plants should be trained to tall stakes or wire trellises and thoroughly pruned, all branches and foliage being taken off for 2ft from the ground. This will be a great aid in saving the plants from blight attack.

Royal Botanic Society and Motor Lawn-mowers.

The second monthly exhibition was held on 13th ult., when a goodly display of choice plants and flowers was provided. The committee present consisted of Messrs. J. Willard (chairman), Wm. Howe, W. Bull, Heaton Nichols, and E. F. Hawes. The weather was fine, and a good attendance was secured. The society introduced a novel feature on this occasion, which should prove of great value to gardeners and their employers. It consisted of a working exhibit of motor and other lawn mowers by Messrs. Ransomes on the main lawn in front of a large conservatory, and was of great practical value to a large number of persons present, who were thus enabled to form an opinion of their work.

The Lily-house, Edgbaston Botanical Gardens.

Apropos of the rebuilding of the Lily house in the Botanical Gardens at Edgbaston, I hear that it is proposed (says a contemporary) to grow in the tank a *Victoria Regia* Lily, that is, a specimen of the giant aquatic from the River Amazon. This Lily has not been grown in Birmingham for many years. It is a marvellous plant, its leaves measuring from 6ft to 8ft across. They are round in shape, and are said to be strong enough to bear the weight of a child upon them. The *Victoria Regia* Lily first flowered in this country in the Midland counties, a very fine specimen being successfully cultivated at Chatsworth, the seat of the Duke of Devonshire. The growth of this giant will be watched with interest at the Botanical Gardens.

Report of the American Pomological Society.

The secretary of this national society of fruit growers and students of horticulture announces that the report of the proceedings of the Boston Convention has just come from the press, and is ready for distribution. This report contains an unusually large amount of valuable matter, including as it does the addresses of noted scientists and pomologists. Important changes appear in the amended code of nomenclature. For the first time the pomological history of the Middle States is written up; the chapter on ideals in pomology is full of suggestions; the cold storage of fruits is thoroughly discussed. There is also to be found an important contribution on the judging of fruits by the score-card method. Originators of new fruits should acquaint themselves with the method of *ad interim* awards recently adopted by the society, whereby the grower can enter a new fruit for a Wilder silver medal at any time of the year.

Cassell's Popular Gardening.

A second part of the re-issue of "Cassell's Popular Gardening," price 7d. net, has reached us. The work is being entirely re-written, and is fully illustrated.

Weather at Hamilton, N.B.

At last, after a retarded spell of exceptionally uncongenial spring weather, a change has come upon the district. Of course everyone interested in the produce of the soil is now as busy as can be, and with a few days of such admirable conditions, much shall be overtaken that has been seriously belated.—C.

Spring Exhibition at Croydon.

In every part of the South and Midlands of England (we do not hear of many new Scottish shows) spring flower shows are increasing, and Ipswich, Croydon, Feltham, Truro, Plymouth, Birmingham, have now established exhibitions of Daffodils and other hardy plants. The Croydon and District Horticultural Mutual Improvement Society held their show yesterday in the Art Galleries, and, favoured with good weather, it was very successful.

Antifrost Solution.

As an excellent remedy against the freezing of shop windows the Pharmaceutische Zeitung recommends the application of a mixture consisting of fifty-five grams of glycerine dissolved in one litre of 62 per cent. alcohol, containing, to improve the odour, some oil of amber. As soon as the mixture clarifies it is rubbed over the inner surface of the glass. This treatment, it is claimed, not only prevents the formation of frost, but also stops sweating.

Scottish Emigrants to Canada.

The "rush to Canada" has again begun, and the first steamship of the season has sailed on the 16th from Glasgow with no less than 700 emigrants, mostly of the agricultural class, among which I could here and there see representatives from the gardening profession. I was very much impressed by noting the fine, strapping young fellows thus drained away from our shores—indeed, the very pick of our manhood. However, it seems there is no remedy for this, and not likely to be forthcoming in the near future. Men certainly must offer themselves in the better market, and strike out for the means which assures the greater amount of wealth and independence, irrespective of patriotism and other hard-to-be-severed ties. But *patria cara, carior libertas*.—D. C.

Hyacinths and Spring Flowers in London.

Wherever one travels in the West End of London, gorgeous arrays of flowers greet the eyes, and their fragrance scents the air for long distances. Particularly is this true of the square by the west side of the Houses of Parliament, and at Spring Gardens, where the London County Council offices are. It is unnecessary to add that Hyde Park, Regent's Park, and all the parks and open spaces are alike in displaying beautiful legions of floral colour, while overhead the leaves of the trees in the freshest, tenderest, and brightest of greenery, provide all that is needed to make the pleasures and beauties of the parks unchallengeable. The Hyacinths this year are particularly strong and handsome, and were supplied, we believe, by Messrs. James Carter and Co., of Holborn. "Wes. Enders" are, indeed, a favoured people.

Market Prices of Fruit and Vegetables.

Flowers are cheap and plentiful. A fine lot of hothouse Strawberries have arrived, and are selling at 1s. and 1s. 3d. the "punnett," or small basket. Lettuce is to be had in fairly large quantities at 1½d. and 2d. per head. Cucumbers bring 5d. to 8d. each, Watercress is 1d. a bunch, and Asparagus 1s. 6d. to 2s. a bunch. Good supplies of Australian and Tasmanian Apples continue to arrive, the best selling at 8d. per lb., other kinds at 6d. Oranges are at present coming direct to the Tyne. Retail prices remain unaltered, but wholesale figures have risen 1s. to 1s. 6d. per box. Rhubarb grown in the open is selling at 1d. the bunch, forced kinds at 1½d. New Potatoes are a little cheaper, being now 6d. per lb. Potatoes of very good quality from the Canary Islands can be had at 3d. per lb., which is the price asked for those grown at Alderney. Spring Cabbages are just coming in from Evesham, and fetch 2d. and 3d. each.

The late Mr. H. Herbst and Gardening Charities.

We learn from Messrs. Geo. Nicholson and W. Botting Hemsley, executors under the will of the late Mr. H. Herbst, that the deceased bequeathed £100 each to the Royal Gardeners' Benevolent Institution and the Royal Gardeners' Orphan Fund.

Motor Cars and Strawberry Culture.

Cultivators of Strawberries in wayside gardens have a complaint of their own against the motor car. It raises such a cloud of dust that the cultivation of the Strawberry near roads traversed by the motor car is said to be impossible. The dust settles on the young Strawberries, and the dew settles on the dust, and there is an end of the Strawberry as a marketable fruit. At present the fruit prospects of the year on the whole have never been surpassed. The cold weather of March has effectually prevented any premature growth, and if we have not a continuance of night frosts the fruit harvest of this year should be an exceptionally good one. That of last year was an exceptionally bad one.

The Fruit Growing Industry.

The Departmental Committee appointed by the Earl of Onslow to inquire into and report on the fruit industry of Great Britain held three sittings this week. There were present: Mr. A. S. T. Griffith-Boscawen, M.P. (chairman), Colonel Long, M.P., Mr. C. W. Radcliffe-Cooke, Mr. Hodge, Mr. Monro, Mr. Vinson, Dr. Somerville, Mr. P. Spencer Pickering, F.R.S., the Rev. W. Wilks, and Mr. Ernest Garnsey (secretary). Evidence was given by Mr. George Hughes, Mr. E. T. Field, and Mr. J. H. Wakeman-Best, Worcestershire growers; Mr. W. Welchman and Mr. Collins Clayton, representatives of the Wisbech district; and Mr. Kruse, a grower from Truro; and Mr. G. Kerswell and Mr. J. Trevathan, Devon growers, and Mr. P. Spencer Pickering, M.A., F.R.S., technical expert.

Farewell! Chiswick.

A cosy garden, quiet, sheltered, monastic in its general aspect; a place of sunshine, with cool bowers, some magnificent and shady trees; a place with tall Box-edgings, with a council house smothered in Ivy, whose windows faced a shaven level lawn that stretched outward to that wonderfully historic structure the Great Vinery, in the distance; a place of quaint old-fashioned plant houses, with borders, and beds, and paths, and brakes of fertile fruit trees all about—this and a great deal more was "Chiswick," the one and only Chiswick; the Chiswick that gardeners know, and whose name and fame must endure for aye. But the scene is changed, and the Chiswick of our sentiment has ended her historical record. With the sale of the plants, shrubs, and trees about a month ago, almost the last event had come to pass, but the finale and exeunt will be performed when the present superintendent closes the small iron gates for the last time on Saturday evening of this week. And he shall say, and we all shall say, "Chiswick! Farewell!"

Liverpool's Apple Trade.

The "Journal of Commerce" some time ago noted a proposal to send Canadian Apples not to the Liverpool market alone, which at present monopolises the trade, but to Manchester, Birmingham, Bristol, and other populous centres. The object was to save London and provincial buyers the expense and trouble of a journey to the Liverpool fruit market, which is held thrice a week; it was also considered that buyers on the spot would be willing to pay better prices for the fruit than after they had paid their fares to and from Liverpool. The idea found such favour among Canadian farmers that some of them acted on it, and sent their Apples to Manchester and Birmingham instead of to Liverpool; but the results have been, it is stated disastrous, for buyers there were so few that the bulk of the fruit remained unsold, and the prices were much less than at Liverpool; consequently the plan has been abandoned, and Liverpool will continue to be the great market for Canadian fruit. It is declared to be the best fruit market in the country, being attended by some 600 buyers at the sales, which are held thrice a week, and during the Apple season just ended over a million and a half barrels of American and Canadian Apples were sold at Liverpool at better prices than can be realised elsewhere.



Potatoes and the Potato Boom.

Briefly I would reply to "Horticultural Instructor." As to Northern Star, he appears to think that I speak of it solely on my own tests; but will he believe that there are Scottish farmers and Midland men who will back Up-to-Date against it? And what will he say when I on heavy soil and others on light soil, in this district were not impressed with it? I may say, however, that I have not eaten all my Stars, and should they this year prove superior to over 100 varieties pitted against them, then I shall not be backward in making it known. Like so many clever people, "H. I." runs away with the impression that the Star is the first of a new disease-resisting strain, but it is quite a while back since the Red-skin Flourball came over, and Magnum Bonum had such a reputation. Further, I now hold a variety that the raiser positively states has never been diseased during its ten or more years' existence, yet, because there was no boom, it has not been made much of, nor will it ever gain high favour owing to its appearance. Respecting Discovery, "H. I." relies on two samples, but, owing to the habit of modern sorts producing both kidneys and rounds, we have to judge a variety by the greatest quantity of either shape produced, and I, as well as many others, say that Discovery yields more rounds than true kidneys.

Regarding the boom, if "H. I." can prove that the rise in prices was the natural outcome of the ordinary course of things let him do so. I would advise him to go deeply into the subject, and not merely ask a Potato farmer's opinion. He should take note as to what some of the trade papers say of the boom. Again, he says that fabulous sums would not be paid were there no chance of profit, and here lie the possibilities of the boom, for there are men unscrupulous enough to push anything, and I could name one individual who is now pushing a variety that he knows nothing about, but simply uses the raiser's description.

Owing to the *Journal* being crowded by contributors, and having more important business than arguing with "H. I.," I have no intention to accede to the call for an outflow from my fountain pen! Were it possible for "H. I." to hear what fair-minded men have to say, he might in future drop acute personalities, lest he some day should meet in person the youthful Goliath he derides.—T. A. W.

The Luxury of Gardening.

Though the remarks of "D." on page 325 contain words of much caustic bearing, there is nevertheless much truth contained therein. The luxury of gardening to which he takes such severe exception must, however, be admitted to some extent, though not to the extent some are inclined to think. If employers are disposed to preach the doctrine of luxury—and there are many who do—it will not avail the gardener much to attempt single-handed to deny it. If the Gardeners' Association can, by combination, place the interests of the calling on a commercial footing, and raise the standard by protection, it will most certainly deserve well of the craft. One sentence in "D.'s" notes I can verify as being true to the letter, as, like him, I have ascertained what is the extent and commercial value of the supply from gardens the year through, and which of necessity includes vegetables, salads, fruits, plants, flowers, &c. I was prompted to do this because the "luxury of gardening" was so frequently paraded as being out of proportion to its cost. I vainly endeavoured to show that value for value was given, but assumption did not satisfy without facts, and even with the aid of figures conviction was scarcely possible.

The necessity of curtailment in establishment expenses almost invariably strikes first on the garden, yet when comparisons are made by simple calculations, there is a vastly greater cost attending liveried or stable service, without a corresponding use or pleasure resulting. A fairly good-sized lawn and shrubbery could be maintained in very good order at the rate of expenditure incurred in the service and equipment of an ordinary footman, yet the latter is an indispensable item, while the garden at the same moment may be a luxury, not supported by apparent necessity. If gardeners were to act on the suggestion of your correspondent, and keep a daily record based on commercial values for the year, satisfaction might be more often obtained as affecting the two questions, supply and cost.

It cannot be denied that horticulture has been for some time past taking on a commercial aspect, even in the conduct of private gardens. Some who hold high rank among the nobility of England stoop to the cause of commercial gardening by the sale of what is termed surplus produce. True, as "D." says, artists, musicians, jewellers, and actors are no less luxuries than gardeners, but it must not be forgotten these are supported by the masses almost, or in quite equal degree, to that of the affluent. The garden and its commodities, however, are as necessary for everyday life as those of the grocer, butcher, or baker, and if gardeners themselves, aided by the influences of the Gardeners' Association, can only bring these hard facts forward and make them agreeably familiar, instead of repellent, there should be more mutuality of feeling and a great respect endowed in the cause of horticulture as between employer and employed. Importations and the market clearly indicate that commercial gardening is very much alive, and increasingly active, and though the private garden and market are not so closely allied in its forces, I feel much convinced that the private man could hold a more independent attitude were he to carefully ascertain, and prove at the year's end, the value of his labour against the capacity and cost of production.—W.

Gardeners and Their Duties.

Your correspondent "X." (page 293), in your issue of April 7, may be sure that his complimentary remarks respecting Mr. Slade's exposition on the duties of gardeners will meet with general approval. But without knowing the particulars or the circumstances which led up to "X." being served with "the cold shoulder" on the occasion of his demonstration in a certain well kept garden in the absence of the gardener, I venture to think there must have been cause as well as effect. Should "X." be a "demonstrative" demonstrator, the cause is evident, and the effect is what might have been expected in some form or other—all for the want of a little diplomacy. May I suggest for the future that "Demonstrator X." make himself acquainted with the person in charge before he demonstrates on his work? It is not always so much what is done, but the way in which it is done, that is resented, and a little diplomatic oil would, I am sure, be worth a trial on all future occasions.—R. C. S.

Professional Gardeners' Friendly Benefit Society.

My attention has recently been called to the report in the *Journal* of March 17 of the annual meeting of the United Horticultural Benefit and Provident Society, and the question is there asked "why the Leeds gardeners found it necessary to establish an opposition society, instead of strengthening the already existent body?" By the Leeds gardeners I suppose is meant the Professional Gardeners' Friendly Benefit Society—[Yes.—Ed.]—which, by the way, never was a society of Leeds, or even Yorkshire, gardeners, many of its members never having been in Leeds; and the answer to the question is that if the United H.B. and P. Society existed at the time when steps were taken to form the P.G.F.B.S., its existence was not known to the promoters of the latter. The probabilities are that both had been established several years before either knew of the other's existence. About 20 years ago, Mr. Wright, at that time of the *Journal of Horticulture*, was present at our annual meeting, and his subsequent report, and some correspondence which followed in the *Journal*, I think showed that at that time he had no knowledge of any other society of its kind.

I have before me the first contribution sheet, dated January 1, 1867, when 77 members paid their first contributions, and 23 others were initiated, also the certificate of registration of rules, dated February 22, 1867. As some months previous to this were occupied in preliminary arrangements, the making of rules, &c., one is tempted to ask, How long previous to this had the United been formed? But, seeing that two such good societies for gardeners are so well established, why talk of opposition? Surely the United Kingdom is large enough for both to continue to do the good work, and which they are so proud of having been able to do in the past.—GEORGE CARVER, Secretary of the Professional Gardeners' Friendly Benefit Society, Chapel Allerton, Leeds.

[Our representative who was responsible for the report of the meeting referred to was under the impression that the society of which our correspondent is secretary was of recent origin, hence his parenthetical query. The two societies are evidently nearly level in point of age, but the United Horticultural Benefit and Provident Society is now undoubtedly better known, is rich, and has a numerous membership. "Union is strength"; why have two gardeners' benefit societies?—Ep.]



BRODIAEA UNIFLORA ALBA, THE SPRING STAR FLOWER. (See page 240.)



Apple, Cox's Orange Pippin.

No variety of Apple cultivated in English gardens or orchards is better known—by reputation, at least—than is the one we figure this week. "This excellent variety was raised at Colnbrook Lawn, near Slough, Bucks, by a Mr. Cox, who was formerly a brewer at Bermondsey, and who retired to Colnbrook Lawn, where he devoted the remaining years of his life to gardening pursuits. The Apple originated in 1830, and is said to have been from a pip of Ribston Pippin" (Dr. R. Hogg). Though raised in 1830, it seems not to have been introduced to commerce till 1854.

Cox's Orange Pippin is purely a dessert Apple, with the reputation of being the best-flavoured kind at present grown. Certainly it is one of the best, and fruits from scraggy old trees, when "primed" under the conjoint influences of sun, wind, and rain, are deliciously sweet, juicy, and aromatic. The flesh is creamy coloured and tender. The skin is slightly rough, of a rich orange, bronzy red, sometimes scarlet, on the sunny side. The fruits are in season from November till February, and can be kept, if in proper storehouses, till April.

The tree is a medium grower, forming a well-shaped pyramid, with plenty of spurs when on the Paradise stock.

In the colder parts of Scotland it requires a wall, but this is not necessary in sheltered gardens or in the milder districts. "Bearing freely, there is no better sort for market culture as a bush on the Paradise stock; in congenial (not cold) soils, it forms a neat orchard tree" (Fruit Garden). It is unwise to plant large patches of this variety by itself.

Grape, Madresfield Court.

In the cultivation of this fine summer Grape there attaches much that may be described as mysterious. Many may grow it quite successfully up to a certain point, and then just as signally and promptly fail, while others find no difficulty in supplying superb examples in every desirable detail—weight and shape of bunch, size of berry or finish. It is said by some that to cultivate the Madresfield Court Grape successfully a separate structure is necessary; while others may give ocular proof that such is by no means essential.

Reasons assigned to the common failures have been many, and yet the real cause has yet to be defined. The question has been frequently given, and perhaps just as often evasively answered, but among the great many *Journal* readers who desire to excel in Grape culture, there is still the lingering hope that some day they may find the clue to successful culture. The greatest puzzle of all is splitting of the berries just as they have reached that critical stage of colouring, and up to which time all have gone so well. Some will advise a droughty state of the border from this period onward, while others adopt just the opposite course. The suggestion of growing this variety separate from all others, of course may easily be made a means of evading excess of root-moisture; but in so many cases it is not possible to do this. While a dry border and a comparatively dry atmosphere are sometimes a means of success, we can point to instances where this abstemious custom has been just as studiously avoided, and instead of withholding water they have been given alternate daily solutions of clear and diluted manurial liquids, and this course, opposed though it seems to common-sense practices, resulted in the maturation of some of the best Madresfields we have seen. Thus, two courses as opposed as it is possible for them to be, have been the means of securing the same ends.

The question that arises is, How is it possible, or why should it be so? The answer cannot, certainly, be a very convincing one, because the opposition of the forces is so absolute. Buoyancy of atmosphere, elevation of the structure and surroundings, nature of the soil, and perfect construction of the house occupied may form some of the essential points that combine to produce perfect examples of this fickle, but high-class Grape. A sharply-pitched and drip-proof roof is one strictly necessary provision, for in showery times and an atmosphere more heavily charged with moisture just at this critical time at once sets up splitting of the berries, and with it ruined prospects. It is most distracting when, after they have progressed to a partial colour, and almost a complete growth of berry, the splitting cannot be stopped owing to structural defects. Planting near the end of the house; squares of glass removed and the spaces filled in with perforated zinc; covering of the roots so as to keep them free from rain storms, all failed in their influence to give satisfaction. Incisions made in the laterals, or

a puncture with gimlet just behind the bunch have been tried without gain, so that under ordinary conditions of culture luck, rather than science, seems a dominating rule in securing perfect bunches.

No difficulty presents itself in the growth of the Vine, not so much, in fact, as is given with Gros Colman sometimes, and it sets its berries perfectly with only slight aids to fertilisation. The thinness of the skin, and its non-elasticity probably account for such frequent rupture of the ripening berries, but there is in the constitution of the pulp something very sensitive and highly perishable, because the smallest damage to one berry quickly effects great rents in the most perfect of bunches. If the noble character of the Madresfield could only be blended with the good and reliable Hamburg by the scientific hybridist, what a gain to cultivators and consumers would follow in after years! This, however, seems an imaginative thought more than possible of actual attainment, since it has lived so long without giving light to a new birth.—W. S.

The New Soil Science and Its Results.*

(Concluded from page 327).

Let us refer to one more soil element—iron. At the Dalmeny experimental station we have been for years using ferric oxide—and with great advantage—where we find by analysis that the soil requires this available but non-poisonous form of iron. I have never heard of such treatment being systematically followed before, and yet we have been called in question by a newspaper correspondent, who, along with several others, has tried hard for some time to draw the badger, but hitherto without success; and this critic says there is nothing new in this treatment, because he knows that so-and-so used iron many years ago. I am as well aware of that as my critic is, and it is perfectly well known that many others have used iron—*BUT in what form?* The answer to that is most convincing of the ignorance of the experimenters, because, to add the poisonous and diffusible sulphate of iron at the soil surface must of necessity be as disastrous as would be the bringing up of ferrous salts from sub-soils by those capillary pipes, whose works, as pictured in books, are so wondrous.

All the experimenters of whom I can think at this moment—except at Dalmeny—have used as a source of iron this poisonous ferrous sulphate, and it is no wonder its use was discontinued, for they were, as usual, working by rule of thumb—We'll try this, and we'll try that, and we'll try the other thing; but they had no true science to guide them, and their fate was inglorious.

I should, perhaps, here refer for a moment to the functions of farmyard manure. That has been represented as valuable, mainly because of containing a few pounds' weight per ton of phosphates, potash, and nitrogen, but that is pure nonsense. Farmyard manure gives several physical advantages to soil; it holds water in the soil, it contains most of the essential constituents for the advantageous soil organisms; and it is the great seat of bacterial development and change.

At the time of the creation of the new soil science I had experiments going on on my own bit of land at home. The doctrines I had proved correct, and was enunciating to my students were questioned by Professor Wallace, who ridiculed our views. I was challenged to put the doctrines to the test on a practical scale—half an acre not being enough in the opinion of my challenger—and, as I had nothing to fear, and loved the truth, I applied to my old pupil, Mr. A. L. Drysdale, who had just about that time become factor to Lord Rosebery at Dalmeny. Our experiments were started on several fields, and they proved so successful that in the following year the research station was started, with the full and willing consent of Lord Rosebery, and they have been conducted ever since under such conditions as have left nothing to chance. The Dalmeny plots have been visited by scores of agricultural societies, by many scientists from at home and abroad, and, notwithstanding the numerous reports of the work which have appeared in the leading newspapers of Britain and elsewhere, not one single syllable of adverse criticism has been heard until after the visit this autumn of the Galston Farmers' Club.

One anonymous critic got a scurrilous letter published in the *Scotsman*. He did not discuss one single point in science, he did not even suggest any error in our work, but he raved, and made some obscure reference to Holy Moses. There is no doubt in my mind as to the author. He was, if I mistake not, an admiring pupil or at least behaved like, and pretended to be, a disciple. He was so excitable and erratic that I often questioned his sanity. He did not succeed as he hoped to do in Scotland. He has been toadying to some of the experimentalists in the south for years back, and presumably he considered he was doing well in attempting to ridicule good work without being able to call in question any single statement we have ever made, if thereby he improved his situation as an unwise man.

* Paper read before the Renfrewshire Agricultural Society at Paisley by Mr. John Hunter, F.L.C., F.C.S., Edinburgh.

Another of these critics says there is nothing in the Dalmeny work but a little ground lime. In answer to that, I hold a letter in my hand from Edinburgh University, which says: "I think it is most unfair to teach things you know very well no examiner who will test the work has ever heard of." To the chagrin of my censor, I was, shortly thereafter appointed to the examinership in my subject in Edinburgh University—that was on the 19th January, 1903. On the 23rd of the same month I attended a meeting of my co-lecturers in the Incorporated Edinburgh School of Agriculture. They were the late Principal Williams (of the New Veterinary College, Edinburgh), Professor W. Owen Williams, Dr. James Hunter, Dr. R. Stewart Macdougall, Mr. J. Falconer King, and Mr. A. T. Niven, C.A. Professor Wallace was chairman. I hold in my hand an official extract from the minutes of that meeting, which says, *inter alia*:—

"Attention was drawn to a paragraph in the *Evening Dispatch* newspaper of January 19 referring to the appointment of Mr. John Hunter as University Examiner; and specially to a statement therein made that, as lecturer on chemistry, he is advocating doctrines diametrically opposed to those currently taught by the principal teachers of chemistry."

The question put necessarily implied something more than "a little ground lime." However, it was not answered, nor was it answered at a subsequent meeting, when I asked whether I was to be held responsible also for articles which had recently appeared there relating to a milking machine—"an *uninvented invention*"—which had already been boomed notwithstanding, and in which Professor Wallace appeared to have a great interest.

While single-handed, I fought this large and mightily important body to a standstill. It is perfectly evident they had something more than ground lime in their gizzards.

In addition to that, let me inform you that this new science was published—laconically, no doubt—and it will be found in articles contributed by me to Chambers' last edition of their "Encyclopædia" on "Soils" and "Manures," and I venture to say there is in these articles a circle embracing the science so well, that there seems to me little probability of getting outside it for many years to come.

One of our critics regards as absurd the statement that there is no instance of contradiction in any of our experiments at Dalmeny, and he endeavoured to pose as an experimentalist of long standing and experience; but, gentlemen, his experiments have been entirely of the mud-scratching type where contradiction could not fail to be ever present. Dalmeny never dreamt of indiscriminately trying this or that, for the experiments were started purely and solely to test the truths of the new soil science. It has come through the trial triumphantly; it has been proved a success in actual practice, and I feel confident that no sane man who visits Dalmeny and sees the crops which are there raised, will for one moment dare to even suggest there is anything in our treatment of soils that is not worthy of emulation.

It is perfectly evident from the foregoing extracts that there was something more in our work than a little ground lime. But even the introduction of ground lime, and its rational use in agriculture, is denied me. We have Professor Middleton writing in the "N.B. Agriculturist," saying the introduction and use was first suggested by Dr. Somerville in 1893, and was the outcome of experiments he had made with slag. Why Professor Middleton should have dipped in his oar, unless in the hope that I would ignore his writings as I had the ravings of others, I know not; but it must be evident to all, that if I was censured in January of 1893 because of having for several previous sessions been teaching those things—now claimed for others—as the outcome of my experiments of years, I was undoubtedly before Somerville. The fact is, those men knew my views, for I had been expressing them freely, and I was discrediting slag except as a supplier of caustic lime, mainly while they were, and are still, advocating the use of that material—slag.

In the interests of agriculturists let us look for one moment at the humiliating position those men occupy. They suggest or say they were led to use ground lime because of that being suggested to them by the composition of slag. Well, if that were true, and slag, which contains from 20 to 25 per cent. of caustic lime, costs about £2 5s. per ton, which is equal to £9 to £11 5s. per ton for ground lime, a commodity which can be bought any day for about 20s. per ton, why did these men, who have for years been, and are still, being paid to enlighten and to help the less educated mass of farmers, continue to advocate the buying of material at from nine to eleven times its value? Ground lime never was used commercially in agriculture until it was employed at Dalmeny, and at that time there was only one work in Britain capable of producing the material, and Dalmeny had been using it for years before a single ounce passed into the hands of any other agriculturist or experimentalist.

The question has been asked, Why should I presume to criticise others engaged in experimental work? My answer is, Because I have been engaged in agricultural chemistry for over thirty years. I did most of the work (nine-tenths) of the Farmers' Analytical Associations of Scotland, and I hold more agricultural appointments than any other chemist I know of,

and because most of the men who are teaching and experimenting in Scotland, England, and Ireland have been my pupils.

Another critic states that the use of ground lime is nearly as old as the hills, but on investigation we find that this ignoramus regards "gas lime" as being lime. He persists not only in maintaining that they are both practically the same, except that the high smelling gas lime is fully better, but he also tells us that when on his estate a heap of gas lime is laid down, his cattle go and rest on it or in it, that some other of his stock scutter among it, his hens won't leave it, they eat it, and their eggs taste of it, and he likes the taste!

Another similar critic is a newspaper editor, who for years pestered me directly and indirectly for copy. He did get some, and appeared then quite well pleased with himself; but he has not succeeded so well of late, and his miserable attack can only have one intention—more copy. Another gentleman demands



Apple, Cox's Orange Pippin.

that Lord Rosebery should publish his balance-sheet before he, the critic, can accept any of the teachings of Dalmeny. Others blame us for not publishing our results. In answer to that, I have to say that Dalmeny has been at all times open to all who cared to come and see. Scores of agricultural associations have visited the estate, and have been unstintingly supplied with pabulum for mind and body. Notices of those meetings have invariably been given in all the leading general papers, as well as by the best of the agricultural papers of Scotland and England. If a book has not been published, my explanation is, we have not had time, for we—Mr. Drysdale and myself—are busy people. We have much to attend to. We are not in the pay of any college or board that is entitled to call upon us for any service of the kind. Our work, which has been great and taxing, has been done purely and solely for the love of knowledge and truth without one farthing of pecuniary benefit, and to have, under those circumstances, to experience at this late hour the miserably inaccurate criticisms of men who ought to know better, is worthy of that supreme contempt with which we have hitherto treated it.

In conclusion, gentlemen, I don't shirk discussion. I court it, and if I can give the agriculturists of Renfrewshire any information or suggestions, I am ready now to do whatever is in my power, and it will afford me much pleasure.

Obituary.

Mr. Edwin Hill.

We deeply regret to have to announce the death of Mr. E. Hill, who was for many years head gardener to the Right Hon. Lord Rothschild at Tring Park, Tring. Mr. Hill, who was a comparatively young man, had excellent health until some time ago, when an internal malady set in. Needless to say, he had the best advice procurable, and recently it was decided that an operation should be performed, and that it should be done at St. Bartholomew's Hospital in London, in order that the best chance of recovery might be had. He kept on with his duties, and even gave instructions before going up on Monday last. On Tuesday afternoon the operation was performed, but early on Wednesday morning, April 13, he died. Mr. Hill was one of the best-known and cleverest gardeners of our day, and the excellent condition in which he maintained every department of the extensive gardens and pleasure grounds at Tring Park was a source of admiration to the many visitors there. He was for many years a member of the Orchid Committee of the Royal Horticultural Society, and a familiar figure at most of the principal horticultural gatherings.

Mr. William Carmichael.

We regret to learn of the death of Mr. W. Carmichael, at the age of 88 years, at his home, 14, Pitt Street, Edinburgh. He was a native of Comrie, Perthshire, and at an early age resolved to be a gardener. His mother tried to dissuade him by saying, "Dinna be a gairdener, Willie. It's a wanderin' life, and you hav' na a frien' in the warl'." Willie would be a gardener, however, and, owing to his enthusiasm and perseverance, ultimately rose high in his calling. For ten years he was head gardener on the Royal estate at Sandringham, when the King was then Prince of Wales. During this period Mr. Carmichael met and conversed freely with the late Queen Victoria, as well as the late Emperor and Empress Frederick of Germany. He was also on intimate terms with the King and Queen when Prince and Princess of Wales. Mr. Carmichael laid out the grounds at Sandringham, and in after years, when retired and living in Edinburgh, he felt proud of his engagement at Sandringham, and never tired recounting incidents and events of his life there. He was a frequent correspondent of "The Gardening World," and had much to say about his early experiences in the cultivation of Heaths and hardwooded plants, which were much in vogue in his day. While in retirement he continued to cultivate his garden at 14, Pitt Street, and raised several varieties of Strawberries. He had two sons educated for the Church—namely, the late Rev. W. G. H. Carmichael, of the East Church, Perth, and another a missionary in Basutoland.

Societies.

Royal Horticultural, Drill Hall, April 19th.

The exhibition held on Tuesday last was one of the richest of the present year, the collection of Narcissi being exceedingly varied, with large numbers of choice varieties. The same may be said of the orchids, and the sweet and modest Primroses and Auriculas staged by members of the N.A. and P. Society helped the general display and interest.

In the afternoon a large concourse of visitors were in the hall, and this hindrance, added to the wide dispersment of the certificated plants, made it exceedingly arduous to obtain an exact report in the time at our disposal. Mr. George Massee lectured on Potato diseases at three o'clock. The Narcissus Committee certificated a number of varieties during a sitting which lasted some hours. The variety Great Warley is the most striking novelty. Fifty new Fellows were elected.

Orchid Committee.

Messrs. Jas. and A. A. McBean, Cooksbridge, Sussex, staged well-flowered *Odontoglossum crispum* in varied forms; and Mr. Charles Vuylsteke, Loochristi, near Ghent, had also *O. crispum*—one pure white, but with yellow lip and brownish spots. Mr. H. Whateley, Kenilworth, had a very richly coloured *O. crispum* and an *O. triumphans* form.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, staged *Lycaste Skinneri alba*, *Tricopilia suavis*, *Dendrobium crepidatum*, *D. chrysotoxum superbum*, *Brasso-cattleya Thorntonii*, the latter a very sweet flower. Mr. H. T. Pitt, Stamford Hill, had *Odontoglossum crispum* Pittiæ, with ten strong and handsome flowers; *O. c. Mand Rochford*, with twelve flowers; and *O. c. Lindeni* and *O. cirrhosum*, Pitt's variety.

Mr. N. C. Cookson (gardener, H. J. Chapman), Oakwood, Wylam, sent up *Odontoglossum crispum* *Smeeannum*, one of the prettiest varieties that have been shown. The flowers are rose-mauve, with silvery edge, and spotted with brown. *Dendrobium*

x Venus, Oakwood variety, was also shown; and *O. c. Xanthotes Cooksoniæ*, bearing nine strong, well formed, true white flowers of good substance, with a bright orange lip.

Mr. J. Gurney Fowler, South Woodford, staged a group of orchids, in which the plants of *Dendrobium Devonianum* formed a very effective background, with *Oncidium concolor* in the front.

Messrs. James Veitch and Sons, Ltd., Chelsea, S.W., staged one of their best groups of the season. This included splendidly flowered plants of *Dendrobium Wardianum*, *D. Wiganianum*, *Sophranitis grandiflora*, *Cochlioda noetziiana*, *Epidendrum elegantulum*, *Cattleya intermedia alba*, *Lælio-cattleya Highburiensis*, *Lælia Miss M. Gratrix*, *L. Latona*, *L. cinnabarina*, *Masdevallia Lindeni*, and *Cymbidium eburneum*.

Sir Frederick Wigan, Bart. (grower, W. H. Young), Clare Lawn, East Sheen, contributed *Cymbidium P'Ansoni*, with reddish-brown veins over a dull greenish-brown ground. The lip is mostly white, with V-shaped tea-coloured mark in front. *Odontoglossum polyxanthum grandiflorum* and *O. Adrianae* variety, together with *Eulophiella Elizabethæ*, were included.

Fruit and Vegetable Committee.

Present: Mr. A. Dean (in the chair); with Messrs. E. Beckett, W. Pope, W. Fyfe, H. Parr, J. Lyon, G. Norman, W. Crump, R. Lewis Castle, H. J. Wright, F. Q. Lane, G. Kelp, G. Wythes, J. McIndoe, and S. Mortimer.

The exhibits before this body were not numerous. A cultural commendation for Potatoes from the open sent from Ireland was accorded.

Narcissus Committee.

Present: Mr. H. B. May (in the chair); with Miss E. Willmott, Messrs. R. Sydenham, A. Kingsmill, E. A. Bowles, G. Reuthe, W. Goldring, Arthur R. Goodwin, P. R. Barr, J. T. Bennett-Poë, Walter T. Ware, James Walker, Geo. H. Engleheart, S. Eugene Bourne, E. M. Crosfield, John Boscawen, John Pope, C. Macmichael, W. F. M. Copeland, J. D. Pearson, Charles T. Digby, R. M. Wallace, W. A. Milner, Geo. Titheridge, and Chas. C. Curtis.

Messrs. Barr and Sons, Covent Garden, made a beautiful display of Daffodils. The vases were tastefully arranged on a sage-green covering, which was much better than the usual green. A few of the best were Madame de Graaff, Big Ben, Lord Roberts, Lucifer, Pyramus, White Lady, Mrs. Betteridge, Gloria Mundi, Weardale Perfection (very fine), Maggie May, Madame Plomp, and Glory of Leiden. Mr. Melville, Branston, Lincoln, staged a small though nice display of Daffodils. The blooms were particularly fresh and bright.

Messrs. Hogg and Robertson, Dublin, brought a fine display. The blooms were well displayed, and much admired. A few of the most striking forms were Empress, Emperor, Countess Cadogan, Brigadier, Lady Margaret Boscawen, Lady Arnott, Madame Plomp, and Mr. J. Berkeley.

Narcissi were also staged by H. R. Darlington, Esq., Park House, Potters Par (gardener, Mr. D. Brignell). The exhibit was certainly good, and included several of the newer forms. The vases were also well arranged.

Miss Willmott, Great Warley, made a most interesting display of seedling Narcissi, three of which gained awards—Zenith, Great Warley, and Warley Scarlet. Other striking forms were Cormoran and Cernuus plenus.

The Rev. G. H. Engleheart, Dinton, Wilts, exhibited a nice collection of his new varieties, but very few of them were named.

From Messrs. R. H. Bath, Ltd., Wisbech, came a fine collection of varieties, which included Hodstock Pride, Duke of Bedford, Glory of Noordwijte, Weardale Perfection, King's Norton, Spinnaker, Madame de Graaff, and Fusilier, all of which were staged in first-rate form.

A large and varied display was that staged by Miss F. W. Currey, The Warren Gardens, Lismore, Ireland. The blooms were large and fresh. A few of the most conspicuous were Queen of Spain, Barri conspicuus, Enid, King Alfred, Firebrand, Princess of Wales, and Mrs. Robert Sydenham. The exhibit was embedded in a carpet of moss, which produced a pleasing appearance.

Mr. Chas. Dawson, Gulwal, Penzance, exhibited a nice collection of the Poeticus family chiefly, and their freshness and freedom from damage was the subject of general comment. The best were Marie Louise, White Lady, Red Lancer, Hawfinch, and Wagtail.

A beautiful group came from Messrs. Jas. Veitch and Sons, Chelsea, which were tastefully arranged with ferns. The chief varieties were J. H. Wentholdt (a fine form), Emperor, Madame Plomp, Sir Watkin, Glory of Leiden, Queen of Spain, and Albicans. Messrs. Pope and Sons, King's Norton, Birmingham, sent a fine exhibit of Daffodils.

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. C. T. Drury, R. Dean, C. E. Shea, A. Perry, John Jennings, J. A. Nix, C. R. Fielder, Chas. Dixon, R. Hooper Pearson, H. Turner, H. J. Cutbush, E. T. Cook, R. C. Notcutt, R. Wilson-Ker, W. Cuthbertson, W. P. Thomson, E. H. Jenkins, Geo. Paul, Ed. Mawley, Jas. Hudson, and H. J. Jones.

Messrs. Thos. Cripps and Son, Tunbridge Wells, made a nice display of Acers, varying in size from a foot high to five feet high. They were all beautifully grown, and made a pleasing feature.

From Messrs. R. and G. Cuthbert, Southgate, came a beautifully arranged group of flowering shrubs, which included fine blocks of Azalea mollis, Lilacs in variety, Rhododendrons, Staphyleas, and Deutzias. The standards gave a fine effect, especially the Wistarias, Azalea mollis, and Lilacs.

Roses were splendidly displayed by Messrs. F. Cant and Co., Braiswick Nurseries, Colchester, the most noteworthy being Souvenir de J. Ketten, Boadicea (fine), Frau Karl Druschki, Bob Davison, Mrs. Edward Mawley, Lady M. Beanclore, Ulrich Brunner, and Souvenir de Pierre Notting. These were all staged with long stems, while in pots were Madame N. Levavasseur, Snavitchaar, and Leuchstern.

The Guildford Hardy Plant Nursery made a pleasing display of rock and alpine flowers, in which Megasea cordifolia purpurea, Primulas frondosa, rosea, and nivalis were conspicuous; also some choice Saxifragas.

Messrs. J. Chal and Sons, Crawley, also made an interesting display of rock and alpine plants, staged in boxes, and mostly arranged naturally. Primulas largely predominated, Narcissi were also in evidence, while Phlox canadensis and a nice variety of Sempervivums were nicely staged.

A display of a similar character came from Messrs. G. Jackman and Son, Woking. A box of double and single Primroses were very pretty, especially the former. Adonis vernalis, Ranunculus amplexicaule, Edraianthus serpyllifolius, and Ramondia Nathaliae were also exhibited in good form.

Messrs. T. S. Ware, Ltd., Feltham, departed from their usual exhibits by making a pretty display of Roses. A few of the best varieties were Sunrise, Bridesmaid, Perle des Jardins, Kaiserin Augusta Victoria, and Caroline Testout.

From Messrs. H. Cannell and Sons, Swanley, came a glorious display of zonal Pelargoniums in vases, which attracted much attention. The best varieties were Lady E. Malet, Lady Roscoe, Mrs. Geo. Cadbury, Queen of Italy, Mary Hamilton, Duke of Bedford, Lord Roberts, and Prince of Orange. The same firm also exhibited a box of Primroses and Polyanthuses, which denoted a very fine strain.

Mr. G. Reuthe, Hardy Plant Nursery, Keston, exhibited a table of hardy flowers, which included a collection of Narcissi, some excellent Primulas, Ramondia Nathaliae, and Erythronium giganteum. From Mr. A. J. Climpson, Harpenden, came a basket of Galega officinalis variegata, which certainly appears to be effective as a foliage plant. Mr. E. Bennett, Pirbright, Surrey, staged three seedling Roses, of which Lady Lily Bennett appeared to be the best. Mr. J. Crook, Ford Abbey, Chard, staged fine baskets of Polyanthuses and Primula obconica. The former were exceedingly fine.

Messrs. W. Balchin and Sons, Hassocks Nurseries, made a beautiful exhibit of hardwooded plants, which included Acacia armata, A. diffusa (well flowered), and Tethratheca ericoides, with its quaint mauve flowers, was much admired. A few plants of Erica propendens and Primula verticillata completed the exhibit.

Messrs. Storrie and Storrie, Dundee, exhibited well-grown plants of Primula obconica in a variety of colours, the rose-coloured form being extra good.

Mr. H. B. May, Dyson's Lane Nursery, Edmonton, contributed a varied display, in which Roses and Clematises were most prominent. The plants of Madame L. Levavasseur were splendidly flowered. White Pet and Dorothy Perkins were also good. Nellie Moser was the most striking of the Clematises. Acers, Ferns, Asparagus and other suitable was also largely employed.

Messrs. W. Cutbush and Son, Highgate, made a nice display of Primulas and Auriculas, arranged naturally. The hybrids of P. Sieboldi were striking, and a block of named gold laced Polyanthuses must have been most interesting to lovers of this old florists' flower. Auriculas were also in evidence, both the show and alpine types.

From Messrs. Jas. Veitch and Sons, Ltd., Chelsea, came Cinerarias of the stellata type, variety Feltham Beauty. The plants were dwarf, and the colours very varied. Some grand Hippeastrums were also displayed, Ronda, Florian, Finedon, Norma, Acis and Lyso were the best. The Jasminum primulinum was also in excellent form.

Messrs. Paul and Son, Cheshunt, exhibited Roses in pots, which included R. Banksia Double White and Double Yellow, the plants being seven to eight feet high. A few well-grown standard Lilacs and Deutzia gracilis rosea completed the display.

Messrs. J. Peed and Son, West Norwood, contributed rock and alpine plants, in which a basket of Saintpaulia ionantha was the finest feature. Primulas in variety were also well staged, Aubrietias, Pansies, Anemones, and Saxifragas. A pretty exhibit of Anemone King of Scarlets came from Mrs. Luther Holden, Penetoft, Ipswich (gardener, Mr. T. T. Whittell). The blooms were large and well developed.

The Misses Hopkins, Mere, Knutsford, made a nice display

of Primulas and Daisies. In the former were noted Auricula Queen Alexandra, Golden Queen, a green Primrose, and a nice exhibit of Daisy "Alice."

Anemones came from Messrs. Gilbert and Son, Dyke, Bourne, the King of Scarlets being the chief feature, while the St. Bridget varieties were excellent. A. Pulsatilla was also well grown. Mr. H. C. Pullham, Elsenham, Essex, staged a group of alpine and rock plants, which included Primulas, Saxifragas, and a variety of similar plants.

Mr. Geo. Mount, Canterbury, surpassed himself on this occasion by staging a grand exhibit of Roses. The best varieties were Mrs. W. J. Grant, Perle des Jardins, Anna Olivier, Captain Hayward, Frau Karl Druschki, Niphetos, Mrs. J. Laing, Madame Abel Chateney (in grand form), Kaiserin Augusta Victoria, and Catherine Mermet.

The Craven Nursery, Clapham, Lancaster, staged a collection of rock and alpine plants, which were nicely arranged; also pans containing Japanese gardens in miniature, which appeared to interest the visitors very much.

Messrs. B. R. Cant and Sons, The Old Rose Gardens, Colchester, contributed a display of Roses, the Blush Rambler in pots proving effective. Other prominent sors were Caroline Testout, Mrs. J. Laing, Antoine Rivoire, and Fisher Holmes.

Certificates and Awards of Merit.

Cattleya Schrödera, Fowler's var. (J. Gurney Fowler).—A graceful, thick-petalled, large flower. The sepals are narrow and the petals are broad, each curving outward. The colour is blush-mauve, and the handsome lip is orange coloured inside the tube, the edge being silvery-mauve with a purple-violet zone between the edge and the orange part. A.M.

Cypripedium Wellesleyanum (F. Wellesley, Woking).—A niveum cross, presumably; colour soft tea-yellow, the inside of the petals and sepals spotted with crimson. A.M.

Dendrobium Thwaitesae, Veitch's variety (J. Veitch and Sons, Ltd.).—Parentage: *D. splendidissimum grandiflorum* × *D. Wiganiae*. Sepals and petals buff-apricot, the edge of the lip the same, with blackish-crimson centre and base. F.C.C.

Fritillaria inodora (C. J. Van Tubergen, Jun.).—"The scentless Crown Imperial from Eastern Bokhara." The flowers are orange-crimson, borne in whorls, and the plant is vigorous. A.M.

Hippeastrum Ronda (J. Veitch and Sons, Ltd.).—A flower of excellent shape and good, firm build. The colour is rich crimson-scarlet, with faint white beams towards the base. A.M.

Hippeastrum Snowden (W. H. Burns, Hatfield).—A white variety with green base; a fine flower of good size and form; the best white to date. F.C.C.

Iris Lorteti alba (W. Cutbush and Sons).—The standards are palest lilac or palest grey-mauve; the falls buff or tea, with a dark crimson spot in the centre. A.M.

Narcissus Bennett-Poë (A. Kingsmill).—A pale sulphur-coloured flower, somewhat of the Johnstons type; the trumpet funnel-shaped and very even. A.M.

Narcissus Dewdrop (Mrs. Backhouse).—A moderate-sized flower, difficult to class, but probably a medio-crown, the colour primrose yellow with slightly reddish edge. The segments are strong and pure white. A.M.

Narcissus Elvira (Barr & Sons).—A tri-floriata variety with flowers $1\frac{1}{2}$ to 2 in. across. The segments are white and the medio-crown is yellow. A.M.

Narcissus Henri Vilmorin (Barr & Sons).—A primrose trumpet Daffodil, with much paler segments. A.M.

Narcissus Great Warley (Miss Willmott).—An uncommon form of flower, $3\frac{1}{2}$ to 4 in across, serving to show how greatly intercrossed the varieties now are. It may perhaps be termed an improved Miss Margaret Boscawen. The bell-shaped crown is rich yellow, $1\frac{1}{2}$ in across, and is deep with wavy edge, and the perianth segments are of a tea shade. F.C.C.

Narcissus Pyramus (Barr & Sons).—A large sulphur trumpet Daffodil, with soft ivory perianth. A.M.

Narcissus Surprise (Pope & Sons).—Not seen.

Narcissus Warley Scarlet (Miss Willmott).—The small, flattish, crinkled cup is bright orange-scarlet—one of the brightest scarlets yet seen. The perianth is graceful and tea-coloured. A.M.

Narcissus Zenith (Miss Willmott).—One of the brightest. The perianth is delicate and almost transparent, while the flat corona is orange within and scarlet edged. A.M.

Odontoglossum crispum Venus (de Barri Crawshay).—Not seen. A.M.

Odontoglossum crispum xanthotes Cooksoniae (N. C. Cookson).—A gem of the first water; true white, of splendid form, much substance, and bright rich yellow labellum, edged white. F.C.C.

Pteris Summersi (H. B. May).—A beautifully plumose and much dissected fern. The segments of the apex are quite plumose, and each of the pinnate divisions becomes much divided. F.C.C.

Rhododendron Glory of Penjerick (R. Fox, Falmouth).—Flowers of a reddish orange, moderate in size. This, and the two other varieties certificated, are from *R. Blandfordiaeflorum* (cinabarinum) × *R. callophyllum*. A.M.

Rhododendron Harry Mangles (H. A. Mangles).—Same cross as

above. The flowers are bell-shaped, rich crimson at the base and rosy toward the mouth. A.M.

Rhododendron Rose Queen (H. A. Mangles, Seale).—*R. Blandfordiaeflorum* × *R. callophyllum*. Flowers blush pink and white, shaped like a *Lapageria* and with almost equal substance. The flowers are borne in the usual clusters. A.M.

Ribes King Edward VII. (Cannell & Sons).—Not seen.

Tulipa Kaufmanniana coccinea (C. Van Tubergen, Jun.).—A very handsome, deep bright scarlet-crimson variety, fully 3½ in. in depth, the segments oval-elliptic. A.M.

Zygopetalum Gottianum.—Parentage, *Z. Gautieri* × *Z. Perrenoudi*. The segments are dark chocolate brown with green tips, and the lip is violet with broad white edge. This runs in between the violet veins. F.C.C.

List of Medals.

ORCHID COMMITTEE.—Silver-gilt Flora medals to H. T. Pitt, Stamford Hill; J. G. Fowler, South Woodford; and A. A. McBean, Cooksbridge; and J. Veitch and Sons, Ltd.

FLORAL COMMITTEE.—Silver-gilt Flora for flowering plants to R. and G. Cuthbert, Southgate. Silver-gilt Banksian for pot Roses to H. B. May, Upper Edmonton; and for Rose Crimson Rambler to G. Mount, Canterbury. Silver Banksian for Roses to B. R. Cant and Sons, Colchester; for Pelargoniums to Cannell and Sons, Swanley, Kent; for hardy plants to G. Reuthe, Keston Nurseries; and for hardwooded plants to W. Balchin and Sons, Hassocks. Bronze Flora for alpine plants to J. Cheal, Crawley.

National Auricula and Primula, April 19th.

The annual exhibition of this society was held in conjunction with that of the Royal Horticultural Society in the Drill Hall, Westminster, and the classes were well filled. The first class was for twelve Auriculas, dissimilar, and Mr. James Douglas again asserted his skill as a grower by winning first place. The collection comprised the green edges Lancashire Hero (?), Grasshopper, Dr. Hardy, and Abraham Barker; grey-edged Conservative, Amy Robsart, and Magpie; with the following selfs:—Mrs. Potts, Ruby, and Mrs. Phillips.

Mr. J. Sargent, Cobham, was second, with Gerald, Abbé Lizst, Ruby, Heatherbell, Mrs. Potts, Shirley Hibberd, all of which were very fine. Mr. W. Smith, Bishop's Stortford, came third, his finest being Mrs. Phillips and a seedling after the Ruby stamp. Fourth, Mr. C. Turner, Slough; and fifth, Mr. W. Bathgate, Crossfield, Enfield.

Mr. J. Sargent for the half dozen Auriculas was foremost with Richard Headley, Acme, Elaine, as grey edges; Abbé Lizst, and Gladiator, green edges; and Gerald, a self. Mr. J. T. Bennett-Poë, 29, Ashley Place, S.W., was second with a good Geo. Rudd, as the best; and Mr. J. Douglas was third.

For four Auriculas, dissimilar, there were seven competitors, and Mr. F. Wellesley, Woking, came out first, staging Acme, Shirley Hibberd, Geo. Rudd, and Mrs. Potts. Mr. J. H. Wilson, Handsworth, Sheffield, was second with Acme, Ruby and Cleopatra as his best; while Mr. J. F. Bennett-Poë, 29, Ashley Place, S.W., was third.

The class for two dissimilar varieties did not bring out a very strong competition, Mr. Hampton, Reading, being first with Ruby in fine condition, and George Lightbody. Mr. J. W. Bentley, Castleton, Manchester, followed with Heatherbell and Ruby; while Mr. R. Holding was awarded third place.

For a single plant, green edged, there was a keen competition, Mr. C. Turner, Slough, being placed first with the Rev. J. D. Horner; Mr. J. Sargent second with the same variety; and Mr. W. Smith, Bishop's Stortford, third.

The single plant of a grey-edged variety was a small class, Mr. J. Bennett-Poë being first with G. Lightbody, also second with the same variety.

For a plant of the white-edged section there were six competitors. Mr. J. Sargent was first and second, staging John Sargent and Acme in the order named. The third prize plant, Mrs. Dodwell, was without the name of competitor.

The "self" class for a single plant secured a good entry, Mr. W. Smith winning first with Mrs. Phillips; Mr. Hemmell, Winchmore Hill, being second with Zulu (a good seedling), while Mr. J. H. Wilson, Handsworth, came third with Mrs. Potts.

The class for fifty plants, not less than twenty varieties, brought out six competitors, and created a record for the society. The veteran Mr. Jas. Douglas, Edenside, Great Bookham, proved the victor with a fine exhibit. The best forms were Ajax, Geo. Rudd, Roits-red, Lancashire Hero, Sapphire, Heatherbell, Mrs. Phillips, Dinham, Lord Lorne, and Ariel. Mr. W. Smith, Bishop's Stortford, made a very good second, and as an amateur he should feel proud of his position. His best varieties were Rachael, Venus, Mrs. Dodwell, J. Hannaford, Ruby, and a few seedlings of great promise. Mr. C. Turner, Slough, made a creditable third.

Class 10, for four show varieties, staged by novices, was not at all strong. Mr. Martin R. Smith (gardener, Mr. C. Blick), Hayes, Kent, was the only competitor. The varieties were Brunette, Mrs. Potts, Ruby, and Heatherbell.

For two dissimilar varieties Mr. A. J. Cook, Upper Norwood,

was first with Ariel and Heroine; Mr. S. J. Culpeck was second, and Mr. A. J. Cook third.

Class 12 was for a single specimen in either section, the first and second prizes being both taken by Mr. A. J. Cook. The seedlings brought out a numerous entry, but Mr. J. Douglas was first with The Miller. Mr. W. Smith came second with The Sultan.

The alpines made a far more popular show, and in the class for twelve varieties Mr. Jas. Douglas proved the victor, the plants being well flowered. The best were Duke of York, Firefly, Rosy Morn, and Dean Hole. Messrs. Phillips and Taylor, Bracknell, were second, and Mr. C. Turner third.

Class 16 was for six varieties, the competition being very keen. Mr. Jas. Douglas was placed first, his varieties being Rosy Morn, Thetis, Gillie, Firefly, Urania, and Duke of York. Messrs. Phillips and Taylor were a good second, and Mr. F. W. Price, Beckenham, third.

For four dissimilar varieties there was again a strong entry. Mr. F. W. Price, however, secured the premier award; Mr. R. Holding, Birmingham, followed; and Mr. Martin R. Smith brought up the rear.

For a single specimen with golden centre, Messrs. Phillips and Taylor were placed first with Charmer; Mr. Hampton was second with Hampton; and Mr. F. Price third.

For a single specimen, white or cream centre, there was again a good competition, Mr. P. Purnell securing the first prize with a good plant of Mrs. H. Turner. Messrs. Phillips and Taylor were second with Thetis; and Mr. R. Dean third with Mysie.

Class 21, for alpine seedlings, resulted in Mr. R. Holding taking the first prize with Isabel of the Manor; Messrs. Phillips and Taylor were second. The seedlings with white or cream centres were not numerous, Messrs. Phillips and Taylor being placed first, and Mr. Chas. Turner second.

The fancy Auriculas were, of course, not numerous, and Mr. J. Douglas led for twelve. His collection included Lycidas, Quakeress, Isir, Golden Eagle, Innocence, Saxon, Roits-red, Juno, St. Vincent, Bryan, and Shamrock. Again Mr. Douglas led for twelve Primulas in distinct species, with *P. floribunda*, *marginata*, *Sieboldi*, *frondosa*, *obconica*, *denticulata*, *japonica*, and *appennina*.

For a "group of Primulas or Auriculas" in class 27, Mr. J. Grandfield, Hayes, was foremost with a delightful collection splendidly arranged. *P. frondosa*, *Auricula*, *verticillata*, *P. nivalis*, and others, all remarkably well grown. This was a very superior set, and well deserved the prize. Mr. P. Purnell, Streatham, second; and J. H. Wilson, Handsworth, third.

In class 28, for twelve fancy Polyanthus, Mr. S. Mortimer, of Farnham, was the winner, the trusses and the individual flowers being of good size and quality. Mr. J. Douglas was second, and Mr. R. Dean third.

For a single specimen Polyanthus in a pot the results were: 1st, Mr. P. D. Williams, St. Riverne; 2nd and 3rd, Mr. Mortimer. Class 30 for twelve Primroses had two entries, Mr. J. Douglas led with a nice strain, but not overbright; 2nd, Mr. R. Dean, with a good strain, but smaller plants. For a single Primrose, Mr. P. D. Williams was 1st and 2nd; and 3rd, R. Dean.

Class 33: three gold-laced Polyanthus, Mr. J. W. Bentley, 1st, with George IV., Middleton Favourite, and Sarah Holden; 2, R. Dean; and 3, Miss Hopkins.

Royal Botanic, April 13.

The following are the list of awards granted at the monthly exhibition of the Royal Botanic Society in Regent's Park, April 13:—

Gold medals to Messrs. R. and G. Cuthbert, Southgate, for forced plants and Azaleas; Barr and Sons, King Street, Covent Garden, for Daffodils; Stanley, Ashton and Co., Southgate, for orchids; Frank Cant and Co., Colchester, for new and rare Roses; and Miss Adamson (gardener, Mr. G. Kelf), South Villa, Regent's Park, for stove and greenhouse plants.

Large silver-gilt medals to Messrs. Wm. Paul and Son, Waltham Cross, for new Roses and double flowering Peaches; and R. H. Bath, Ltd., Wisbech, for Daffodils.

Silver-gilt medals to Messrs. Wm. Cutbush and Son, Highgate, for forced plants; Wm. Bull and Sons, Chelsea, for Amaryllis; and B. R. Cant and Sons, Colchester, for choice Roses.

Large silver medal to Mr. John Russell, Richmond, for collection of Clematis; and silver medals to Mr. J. Williams, Oxford Road, Ealing, for rural table decorations; The Efficient Lighting and Heating Co., Hill Street, Park Road, N.W., for fuel economiser.

Botanical certificate to Messrs. Wm. Cutbush and Son, for *Calanthe discolor speciosa*.

Floral certificates to Messrs. Barr and Sons, for Narcissus King Alfred, Peter Barr, and Strongbow.

Award of merit to Mr. Henry Parr, The Gardens, Trent Park, New Barnet, for Verbena (sweet scented) F. A. Bevan.

Certificates of merit to Messrs. Weller and Co., Greenhithe, Kent, for improved hoe; Messrs. Ransomes, Sims, and Jefferies,

Ipswich, for motor lawn mowers; Messrs. Champion and Co., City Road, E.C., for oak and teak tubs.

Vote of thanks to Mr. A. P. Bruce, Chorlton-cum-Hardy, for flower displayers; The Charteris Protector Co., for seed protector; Messrs. Barton and Sons, for garden fence spikes.

Ipswich and West of England Daffodil Show.

The committee of the Ipswich Horticultural Society are to be congratulated upon the success attending the enterprise of carrying on the Daffodil Show; which for the previous three years had been run under the joint management of Mr. John Andrews, of Woodbridge, and Mr. A. E. Stubbs. The reputation of the show has been well sustained by the existing management, to judge by the appearance of the Public Hall on April 13, with its well-filled tables of flowers, the attraction of a first-class band, and a crowd of visitors. In previous years we have had to remark that the display depended to a large extent upon trade exhibits. On this occasion, however, the trade was hardly so much in evidence as formerly, while it was satisfactory to note increase in competitive exhibits.

Most interest was centred in the class for a group of miscellaneous plants, which brought no less than seven competitors for the very small prizes offered. All the groups staged show more or less serious defects in arrangement, and the awards of the judges were subject to considerable criticism in consequence. Mr. H. J. Southgate, St. Helen's Nursery, Ipswich, was placed first for a neat arrangement of very ordinary material, which public opinion would have placed last. The second prize went to Mr. A. Creek, gardener to Sir C. Domville, Bart., The Chantry, Ipswich, for a nice lot of *Richardia æthiopica* and *R. Elliotiana*, *Deutzia Lemoinei*, *Spiræa japonica*, and *Azalea mollis*, associated with *Grevilleas* and ferns. A defective background and general flatness of arrangement evidently prevented this group from securing the premier award. Mr. J. Clarke, gardener to Mrs. Spooner, The Lodge, Rushmere, was third, and Mr. S. T. Whittel, gardener to Mrs. Luther Holden, Pinetoft, Rushmere, was fourth. Both these groups, and the unplaced ones likewise, were depreciated by the association of too many colours, as well as a somewhat crowded arrangement.

Several classes were provided for flowering plants. Mr. F. Porley, St. John's Nursery, Ipswich, scored with *Azaleas* and *Cytisus*. Mr. Strutt, gardener to W. P. Burton, Esq., Edgehill, Ipswich, had very good *Mignonette* and a fine specimen *Clivia*. Mr. Whittel secured the award for three *Clivias* with nicely flowered examples. Mr. A. Creek was successful with *Arums*, *Spiræa japonica*, *Cineraria stellata*, and *Lily of the Valley*. The classes set apart for cut blooms and *Narcissi* were in nearly all cases well filled, and the flowers staged were of excellent quality. The principal prizewinners in this section were Mr. W. P. Burton, Mr. F. L. Bland, Mr. Alfred Pretty, and Mr. T. G. Heatly, Woodbridge.

TRADE EXHIBITS.—On entering the hall, visitors were at once attracted by the splendid collection of *Narcissi* staged by Messrs. Barr and Sons, Long Ditton, Surrey. This included a large number of bunches of well known varieties, together with some choice new seedlings. Amongst the latter we noted Peter Barr, King Alfred, Lucifer (the trio being awarded the society's certificate of merit), Weardale Perfection, Duke of Bedford, Bridal Veil, Maggie May, and Lord Roberts. Another extensive exhibitor of *Narcissi* was Messrs. R. H. Bath, Ltd., Wisbech.

Messrs. W. Cutbush and Son, Highgate, had a nice stand of tree *Carnations* and a few *Malmaisons*. An epergne of Mrs. S. J. Brooks (a lovely white) attracted much attention. Sir Hector Macdonald, Floriana, Duchess of Portland, and Winter Beauty were also staged in good form. The St. Brigid *Anemones* from Messrs. Reamsbottom and Co., Geashill, Ireland, were a novelty in Ipswich, and gained great admiration. It was pleasing to see the firm of Messrs. Thompson and Morgan, Ipswich, who have a reputation for hardy plants, yet seldom exhibit, supporting the local exhibition. Amongst an interesting stand of alpine plants staged by them we noted *Primula viscosa* major, *P. rosea grandiflora*, *Anemone Pulsatilla*, *Iris sindjarensis*, *Houstonia cærulea*, *Draba Kotschy*, and *Hacquetia opulus*.

Mr. R. C. Notcutt, of Woodbridge, put up a large group of flowering shrubs in pots. Standard Lilac, *Viburnum opulus*, and *Azalea mollis* were very effective, arising from a groundwork of ferns, *Azaleas*, Daffodils, *Hydrangeas*, *Spiræas*, &c. The same firm staged a choice lot of floral designs. Mrs. Gilbert, Carr Street, Ipswich, who has a great local reputation for floral work, staged several handsome bouquets, wreaths, crosses, and other designs. Messrs. F. Smith and Co., Woodbridge, exhibited cut blooms of *Narcissi*, Tulips, and *Anemones*. The Colchester firms who usually exhibit here were conspicuous by their absence with the exception of Messrs. Ben Cant and Son, who staged only one plant, a splendid specimen of *Rose Blush Rambler*. All the trade exhibitors were awarded the society's certificate of merit.—E. C.

Plymouth Daffodil and Spring Show.

This fine display of spring flowers, at the Guildhall, April 12 and 13, was a great success. The stages devoted to hardy plants were covered with clean, well-grown specimens. Although Daffodils were the feature of the show, hardy plants were specially fine, and Mr. Reuthe had a certificate of merit, and well deserved it. On this stand I noticed a lovely Daffodil, named Gipsy Lad, and *Primula acaulis*, in a pan, crowded with dwarf beautiful flowers.

Messrs. T. S. Ware, Feltham, Middlesex, showed *Shortia galacifolia*, *Gerbera Jamesoni*, a South African plant that loves the sun on a well-drained south border, and *Cypripedium japonicum*. The Devon Rosery Company, Torquay, took first for *Roses Antoine Rivoire*, *Madame Victor Verdier*. Mr. T. Bulteel, of Radford, Plymstock, did splendidly with *Cinerarias*. The wonderful pot plants of *Mignonette* took my fancy; one yard across and well flowered, they did one good to behold. Messrs. Veitch, of Exeter, had some very choice plants. This firm was awarded a certificate of merit for a tree *Pæonia*, *Ellen Willmott*, with lovely bright coloured flowers. *Azalea Rex* and some *Lilacs* in pots, were objects of much attention. *Clematis* Mrs. Crawshaw, a new mauve semi-double, should bring orders. I was told by one large exhibitor that he was not doing much business at the show. He said that at Penzance the Cornish people were much readier to place orders with him. For a large place like Plymouth this should not be. Tradesmen come a long way to help shows. This gentleman came from near London. If he and the few other nurserymen had not come, a large gap in the show would have been seen. Certainly orders ought to reward their sacrifices for the public taste of seeing choice flowers.

Mrs. Coryton, of Pentillie Castle, had excellent blooms of *Rhododendron*, for which she was awarded first prize; the second came to Mrs. J. Williams, of Scorrier. Five large Citrons, not for competition, were shown by Miss Richardson. These fruits attain to great size in this part of England, and were very fine indeed.

The Daffodils shown by Messrs. Barr contained some fine flowers. King Alfred (yellow trumpet), Lord Roberts (ditto), Lucifer (incomparabilis), Peter Barr, a white Ajax, or large trumpet variety, with large white perianth and finely developed trumpet, with recurving ring, were admirable.

For 40 varieties in class 1, the Rev. A. T. Boscawen, Ludgvan Rectory, Long Rock, led; second, Messrs. Pope and Sons, King's Norton, Birmingham. For twelve varieties trumpet Daffodils Messrs. Pope and Son were first.

The winners of the Devon prizes were well to the front in the classes already named in the "open" competitions. I need not mention them in detail. Mrs. Bainbridge was awarded a certificate of merit for six pots of *Mignonette*; Miss Carew for *Cyclamens* and seedling *Amaryllis*; Mr. T. Batson for seedling Daffodil Doreen; and Mr. E. H. Williams for seedling Daffodil; Messrs. Barr and Son for *Narcissus* Peter Barr; Mr. G. Reuthe for *Narcissus Maud*, and *Iris Haynei*; and Messrs. Chalice and Son for *Clanthus puniceus albus* and *Rhododendron Princess of Wurtemberg*.

The show was decidedly a better one than the one at Penzance in quality and quantity, but the fine display could not be seen to full advantage for lack of room. Admiral Parker's gardener took first honours for a group of plants, and Messrs. Martin and H. Collins-Platt were very close in running him with 100 sq ft room. The Rev. S. E. Bourne, Lincoln, and Mr. Crossfield, Wales, judged the Daffodils; Messrs. Patey, Newton Abbot, and Chalice, Plympton, flowering shrubs and cut blooms; and Messrs. Richards, Mount Edgecumbe, and J. Mayne, Bicton, the pot plants.—X.

Sandown, Isle of Wight.

An exhibition of Daffodils and spring flowers was held at the Town Hall, Sandown, on April 13. Mr. S. Banks, gardener to Lady Isabel Atherley, Langward Manor, won the silver cup offered by Reginald H. Fox, Esq., for the best collection of cut Daffodils, containing about 100 vases in about eighty varieties. A very fine lot of good flowers were staged by Mr. Ginger, gardener to Miss Richardson, not for competition, the collection being highly commended. Another fine lot of *Narcissi* and group of miscellaneous plants were staged by Mr. Niblett, gardener to A. G. C. Drable, Esq., Los Altos, and which was also highly commended.

Conspicuous in the centre of the hall was a very fine specimen of *Dendrobium nobile* in a basket measuring 4ft through, and containing quite 1,000 flowers. This was exhibited by Mr. J. Bryant, gardener to — Keller, Esq., Sandown. Mrs. Falkner was successful with a dinner table arrangement with a very neat display; Mrs. Bretherick being second. Mr. Arthur Douglass, as hon. secretary, with Mr. J. H. Perkins, B. Niblett, S. Banks, and J. Bryant, as the staging committee, deserve great credit for getting together a display that enabled the many visitors to see some of the choicer of the popular spring flowers.—C. ORCHARD, Bembridge, I.W.



Hardy Fruit Garden.

STRAWBERRIES.—Where it is intended to mulch these with stable litter for the protection of the fruit, this should be done long before the fruit ripening. If put on only a short time previous to the fruit ripening, it is apt to impart a tainted, musty flavour. The litter is also handy if night frosts are experienced when the plants are in flower. Laid lightly over the trusses it will ward off danger from this source. Forced plants that have undergone a hardening process may be planted outside now in beds or borders. Though perhaps not of such a lasting nature as plants grown wholly outside, they will usually produce heavy crops for a season or two. Pot plants of Royal Sovereign planted out last May produced a heavy crop of fine berries in September, and had the weather conditions been more favourable, we should have had many gatherings.

APRICOTS.—Where these have set very freely the trees should be early looked over, first thinning out the smallest and the bunches of twos and threes, reducing to single fruits. An opportunity should at the same time be taken of rubbing out some of the superfluous growths. Remove protecting material from the trees after the fruit commences swelling.

PEACHES AND NECTARINES.—These have been slow in opening the flowers with us, and our trees will require little attention until the fruit is set. Trees that are more forward should early have attention in disbudding. Go over them about once a week, removing a portion of the unnecessary growths on each occasion, until the work is accomplished. Do not be in a hurry to remove the protecting materials if the weather is unfavourable, but on the other hand, as soon as convenient, the trees should be exposed to all the light and air possible.

YOUNG TREES.—Pears planted at the foot of walls to be trained horizontally must early receive attention in training the growing shoots. If the leader was properly shortened in winter, the top growth will now be pushing, and will need fastening in an upright position. Disbudding may with advantage be carried out if too many growths start, reserving the proper number for deflecting later at right angles to the central stem. Maidens both of Apples and Pears that had their single shoots shortened back are apt to push too many shoots, and by regulating these now much cutting of the trees may be averted later on. Thin and pinch the growths of Gooseberries on walls. This particularly applies to those trained as cordons, as these so quickly become thickets of growth if neglected.

Trees that were pruned and thinned in winter, in the latter case having large branches removed, should be looked over in good time. From the cuts and below them numbers of growths frequently break, and these must be early removed, or the trees, instead of being better for the thinning, will be in far worse case in a couple of years.

GRAFTED STOCKS.—These must be watched, and all growths below the union removed, or the scions will be robbed, and fail to grow away freely. Should any of the latter appear likely to fail, it is sometimes an advantage to allow a conveniently placed shoot to grow; this can then be budded in the early summer. There is not then so much loss of time in having to wait until the following spring for regrafting to be effected. —J. W., Newent, Glos.

Fruit Forcing.

CHERRY HOUSE.—Directly the stoning is completed the fruit commences colouring, and takes its swelling for ripening. The temperature may then be raised, but it must not exceed 65deg by artificial means and 55deg to 60deg at night, with a little ventilation, increasing it at 70deg. Subject to leaving a little air on constantly at the top of the house, close at 70deg, but the temperature must not be allowed to exceed that degree in the early part of the day without full ventilation, as a close, moist atmosphere may cause the fruit to swell irregularly, if not split. From the commencement of colouring until the trees are cleared of their fruits syringing must cease, or the fruits will crack; but good moisture should be maintained by damping the floors and borders as they become dry. Aphides must be kept down by an insecticide, but only fumigation or vaporisation with tobacco or nicotine can be had recourse to after the fruit commences ripening. The borders must not lack moisture, and liquid manure should be liberally accorded to trees in pots.

VINES: EARLIEST HOUSE.—Early forced Vines usually contract red spider, when a timely washing of the leaves with

sponge moistened in solution of paraffin oil emulsion, 2oz to a gallon of hot water, is the safest and best remedy, though rather a tedious process. Syringing, even between the bunches, spoils the appearance of the Grapes for market purposes, and applying sulphur on the hot-water pipes, or vaporisation with sulphur, is sometimes attended with serious discoloration in white Grapes. Afford a thorough supply of water to the inside border, applying it early in the day, so that surplus moisture may be passed off before closing time. A light mulch of dry material will prevent moisture arising prejudicial to the Grapes, but we use rather fresh, yet well sweetened, short litter from the stables, and it prevents the soil cracking, encourages surface roots and affords nourishment. Early Grapes do not always colour well, the defect chiefly arising from overcropping or continued hard forcing and attacks of red spider. It is only avoided by moderate cropping, rational treatment, and cleanly culture. A constant supply of rather dry, warm air, but a comparatively low night temperature, will do much to assist heavily cropped Vines and colouring the Grapes. Where the Grapes are fully ripe a reduction in temperature is advisable, but 60deg is essential to the after-welfare of the Vines, and moderate moisture should be maintained for the benefit of the foliage.

SUCCESSION HOUSES.—The stopping and tying of the shoots must have attention. Where the space is restricted, stop the shoots two joints beyond the fruit, and, as foliage is necessary to maintain root activity, leave the laterals on the shoot above and below the bunch, or at least those from the two lowermost eyes and those level with and above the bunch. Pinch these at the first joint, especially those from the basal leaves, also those above, unless there is space for extending the laterals, when they may be allowed to make two or three leaves, but no more growth should be encouraged than can have full exposure to light and air. After the space is fairly furnished, keep the growths closely pinched to one joint as made. The great evil in Grape growing is overcrowding, which deprives the foliage of light and air, and restricting the growths is intended to avoid that and secure thoroughly solidified wood as it is made.

TYING DOWN.—It is a good plan to have the rods lower than the trellis, so that the side shoots have a slight incline upwards. In tying these in the places where they are to remain during the summer, it is a common practice to begin to tie them down as soon as they are long enough to bend. This is not advisable, unless as a precaution against injury from frost by their points touching the glass, as the shoots at this stage are so tender that the slightest twist the wrong way breaks them. It is a good method to defer tying down until the shoots are less sappy, which may be when the bunches are showing clear of the leaves, or not until the shoots are stopped. Sufficient space should be left in the ligatures for the swelling of the growths. Stopping ought to commence when the leaf at the joint or place of pinching is the size of a halfpenny.

LATE HOUSES.—The Vines are making satisfactory progress. Disbud and tie down the shoots as they require it. It is best to have the rods lower than the wires of the trellis, then the rods will only require tying out, and there is less danger of snapping; besides, the shoots receive an equal supply of sap, and have their points and fruit-shows well up to the light. Close the house early in the afternoon with sun heat, and maintain plenty of atmospheric moisture by frequently damping the houses and syringing the Vines at closing time, but not after the bunches show. The latest houses of thick-skinned Grapes must now be started, giving them every encouragement to make growth, and set the fruit by the early part of June.

LATE HAMBURGS are starting naturally, and need only have a little fire heat to exclude frost, but it is not advisable to allow the temperature to fall below 50deg. Take care that the points of the shoots do not come into and remain in contact with the glass, or they may be scorched by sun or injured by frost. —G. A., St. Albans, Herts.

The Flower Garden.

PREPARATION OF SOIL FOR HERBACEOUS BORDERS.—In forming a new, or renovating an old, herbaceous border, the most thorough method of giving ultimately the best results in the growth and flowering of the various subjects is to deeply dig the soil. Some soil may require but little addition, but others will need an application of rotted manure and leaf soil, digging it in and incorporating with the staple material. Well decomposed vegetable matter also proves serviceable for enriching. Heavy soil should be lightened by gritty material, while sandy soil may be improved by some marl or clay intermixed. Subsoil draining is the best remedy for waterlogged positions.

SELECTION OF PLANTS FOR HERBACEOUS BORDERS.—The most useful herbaceous plants for the majority of cultivators are those which can be utilised for cutting. These may predominate, as they are usually tall, but there are various

heights among them. The tallest growing should be mainly placed towards the rear of the border, but some may be planted to the front of the border. The following is a selection in alphabetical order of hardy herbaceous plants suitable for furnishing a border:—Anemone (Windflower), Arabis, Aubrietia, Alyssum, Aquilegia, Aconitum, Aströmeria, Aster, Astilbe, Boccia cordata, Bellis perennis, Centranthus, Campanula, Chrysanthemum, Doronicum, Delphinium, Dianthus, Dicentra, Erythronium, Echinops, Eremurus, Erigeron, Eryngium, Gaillardia, Gentian, Geum, Gladiolus, Gypsophila, Helenium, Helianthus, Heuchera, Helleborus, Iberis, Iris, Kniphofia, Lathyrus, Lychnis, Oenothera, Pæonia, Papaver, Phlox, Potentilla, Ranunculus, Saxifraga, Sedum, Thalictrum, Veronica. The above comprise spring, summer, and autumn flowering plants of great decorative value, whether the flowers are left on the plants or cut. No hard and fast rule can be laid down as to selection, as all do not appreciate the same plants, therefore opportunities must be taken to discard those of the least interest and cultivate the species of special value to the grower.

WALL CLIMBERS.—The commencement of growth is a suitable time to plant Wistarias, Bignonias, Clematis, Ampelopsis, Noisette, Evergreen, and hybrid climbing Roses. Obtain strong plants, established in pots. On being turned out into well-prepared soil, the roots loosened from the ball, carefully spreading them out, active growth will soon follow, and the plants be quickly established. When the weather becomes dry, water must be afforded, and during the hottest periods of the year a mulching over the roots will be of great service in retaining moisture. Syringing will also be beneficial in ensuring cleanliness and keeping down insects.

MARIGOLDS AND TAGETES.—Double African and double and single French Marigolds and Tagetes signata pumila are better for being sown about the present time thinly in boxes or frames. When not grown in a crowded condition they may be transplanted direct to their flowering positions. Pricking them out separately is, however, the most certain method of keeping them sturdy.

SOWING ASTERS OUTDOORS.—China Asters may be sown outdoors during the next fortnight, not where they are required to flower, but in a sheltered corner or in a cold frame sheltered by a light until the seed germinates. The plants resulting will be sturdy and suitable for late planting. Stocks may also be sown.—E. D. S., Gravesend.

Diseased Shoot of Cox's Pomona Apple.

The portion of shoot shown in the figure at A is of such phenomenal character as to claim illustration and recordation in the *Journal of Horticulture*, for it is, so far as I am aware, the first instance of the destruction of Apple-tree buds by mites. These I found in the buds examined, or evidence of their current or recent presence, by the complete transformation of the central axis, growing point, or bud, into cellular tissue, instead of the normal embryonic leafy, floral, or stem formation enveloped in scales, there being also the erineum or hairs that usually result from gall-mite attack.

The shoot A was quite normal between the joints or buds, sound in bark, wood, and pith, while the buds were more or less swollen, either in themselves or in the tissue immediately adjacent, though in some cases the buds were shrunk, and the true bud part in every instance small, dead, and undeveloped. The consequence is no growth can take place, as the growing points or central axes of the buds are all killed, and the sender, "H. D.," stated the affection developed upward in the shoot, this becoming brown, shrivelled, and dead.

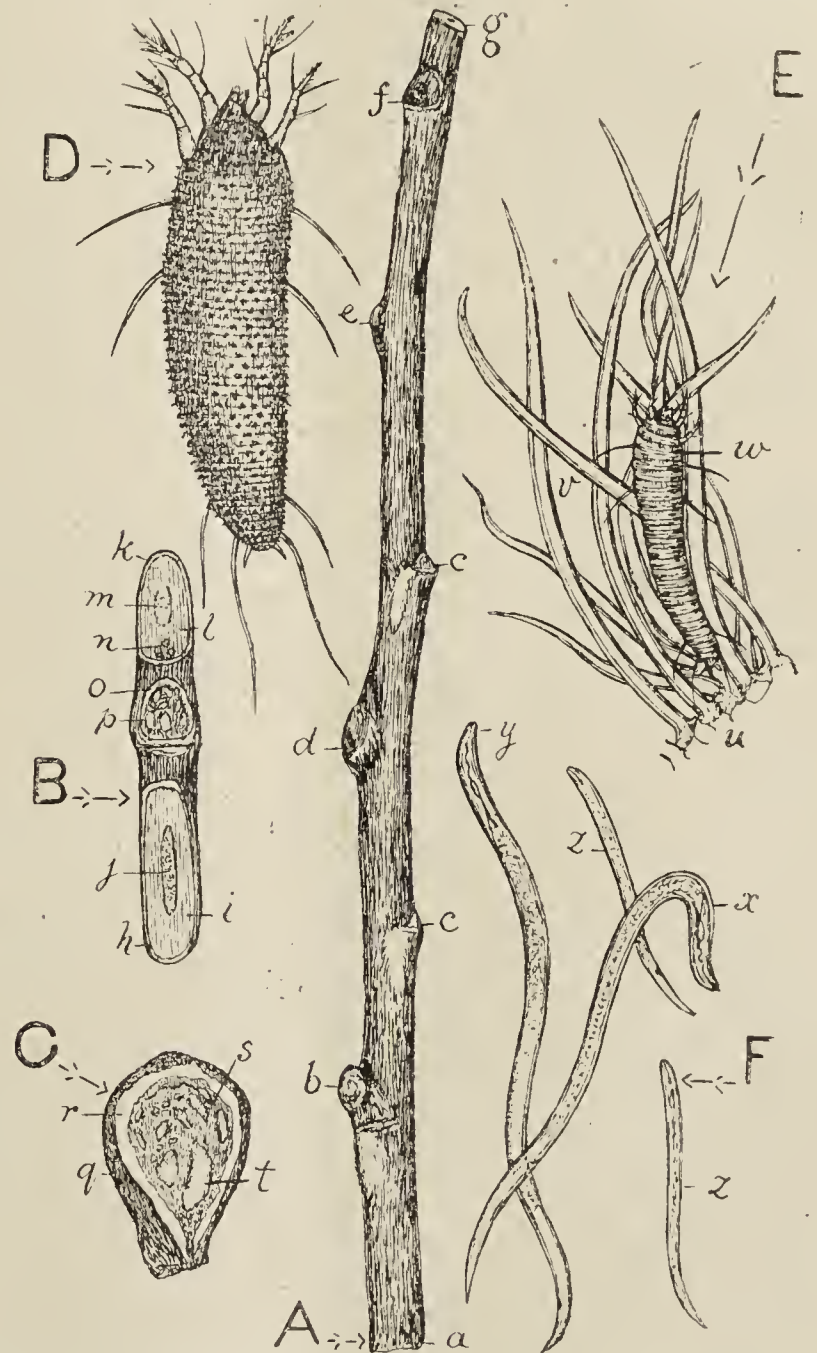
On examining the buds, the first A f, had some browned and dead tissue, and contained eelworms (*Aphelenchus* sp.), both adults, F x and y, and young z, and there being some erineum or hairs a mite was sought for and discovered, shown at D. Leading up to this as cause of the disease was the fact demonstrated by the condition of the wood shown at B, the affection being confined to the bud, this being perforated internally and galled, the erineum or hairs being more pronounced, and no presence of dead tissue. The bud A b, however, gave the best evidence of gall-mite infection, shown at C, and the mite on the hairs is shown at E.

The references will sufficiently explain the phenomenal nature of the infection and conclusively as to the cause. The questions are: 1. What are the mites? 2. What are the eelworms?

1. The mite, D, accords in most particular points of conformation with the Nut tree mite (*Phytoptus avellanae*), but differs somewhat in its work, which is the best distinctive relegation of identity, for it does not gall the Apple buds nearly so much as the Nut tree mite does those of the Hazel, Cob, and Filbert, and it certainly is different from the Apple tree leaf mite, which causes hairy spots on Crab and Apple leaves, but does not gall the leaves. The latter was called *Erineum mali*, now *Phytoptus*

mali. Neither is it *Phytoptus pyri*, for this species does not gall Pear tree buds, therefore I may be pardoned in provisionally naming the Apple bud mite *Phytoptus mali*. Possibly, however, the infection may be exceptional, still it is well worth notice by Apple growers in order to prevent so ruinous an invasion as the Apple bud mite must prove in case of its becoming general in gardens, plantations, and orchards.

2. The eelworms, F, evidently belong to the genus *Aphelenchus*, and are probably the same that cause brown, turning black and shining blotches on Apple leaves, and may have attacked the bud A f through inducement of its soft nature as consequence of the wet season 1903, or more probably from the concurrent infection by the mite. It accords very closely with the "Cauliflower disease" eelworm of the Strawberry and named *Aphelenchus fragariae*, but may provisionally be called *Aphelenchus mali*, though I do not regard it as more than a very exceptional infection.—G. ABBEY.



Shoot of Cox's Pomona Apple with mites in the Buds.

A. Portion of shoot, as submitted by "H.D." to the Editor of the "Journal of Horticulture" for examination and report, April 11th, 1904; a, lower part where sound in bark, wood and pith; b, bud swollen and tissue slightly excrescenced around and below; c, buds quite small and dead-looking, but tissue slightly excrescenced below the joint; d, bud small and dead, but tissue around swollen and slightly shrunk on surface; e, bud quite indistinct and slightly swollen; f, shrunk tissue around sunken bud; g, upper part of shoot where evidently pruned to, and sound in bark and wood.

B. Portion of shoot A, above and below bud d, showing, at lower part:—h, bark healthy; i, wood sound; j, pith clear at upper part; k, bark healthy; l, wood sound; m, pith clear; n, small openings in tissue beneath bark; o, section of bud cut through vertically; p, perforations in tissue of bud and entire obliteration of central axis or growing point.

C. Section through bud A, b; q, outer bark slightly corrugated; r, inner bark or cellular tissue in place of bud scales; s, interior of bud composed of cellular tissue; t, apertures in cellular tissue and with erineum or hairs issuing from surface of passager. × 3.

D. Mite (*Phytoptus mali*) evident cause of diseased buds, × 200.

E. Bit of tissue from gall C at t; u, cellular tissue; v, erineum or hairs; w, mite (*Phytoptus mali*), × 100.

F. Eelworms from dead, shrunk and decayed bud, A f; x, male; y, female; z, young; *Aphelenchus*, sp. × 100.

THE BEE-KEEPER.

Queen Raising.

Reply to "Hexagonal": In queen rearing, unless you have a large stock to run at, and have had time to experiment, it is much cheaper to purchase them for small apiaries. For instance, to split up a colony of eleven bars you would only be able to make three nuclei, and if you obtained three queens from them (which you will not in all cases), you would lose the season's take of honey, say between 50lb and 100lb, and your net result would be the cost of the queens, about 15s., whereas the honey would have realised 50s., and you would have saved yourself considerable trouble. In addition to this, nuclei require a constant supply of hatching brood to maintain and protect them, so that another colony would have to be robbed of some of its brood and strength, and the harvest consequently diminished. It is the succession of queens obtained by the regular breeder from these nuclei which pay, and in many years the profit from the honey harvest will exceed that of the queen breeder. Apart from all this, the system of rearing queens given in most instruction books go wrong in some detail. Every successful queen breeder has his own system, and those are they whose systems represent their bread and cheese, and are not found in any instruction books. A general knowledge of everything connected with bee-keeping is required for queen rearing, and too many efforts have ended in dismal failures for me to advocate it.—E. E., Sandbach.

Feeding.

The essence of successful bee-keeping lies in having powerful stocks. Comparatively few possess any very clear conception of what a powerful colony is. In the height of the season as many as two brood chambers and four shallow supers are sometimes required to contain the progeny of one queen, and the stream of traffic in and out has the sound and appearance of a swarm, and the sound of a distant sawmill at work. Colonies such as these protect themselves from both diseases and robbers, and are very profitable. To obtain this desideratum, feeding has sometimes to be resorted to, the aim of which determines the method employed.

The object of spring feeding may sometimes be to preserve the bees, but generally it is to stimulate the queen to greater activity in ovipositing, to produce the greatest possible number of bees before the main honey flow commences. As soon as the Crocus begins to bloom, and the bees are seen to be active, the wide-awake bee-keeper examines his stocks, and notes the quantity of stores. A word of caution is essential here: Only a cursory examination if the temperature is below 60deg. If any are found to be short of stores, which, if properly fed in the autumn will not be the case, a sufficient quantity of warm syrup should be administered the first mild day, which they will immediately store. It is important that all entrances should be contracted, to prevent robbing, and that the food be given when the weather is warm. For cheapness and efficiency, the stand and bottle feeder commends itself for this purpose, as the food is placed directly over the cluster, which, when the bees are unable to leave the warmth of the cluster, is an important factor at this period of the year.

Extensive experiments have been made with regard to spring feeding, but nothing has been found to excel the method by which the bees are induced to move their stores from one part of the hive to another. Uncapping a few cells will have the desired effect, whilst placing a bruised comb of honey outside the dummy works wonders in encouraging the extension of the brood nest, and the most successful bee-keepers are those who are always in a position to supply these.

The fact that the brood nest is always started near the entrance has originated another excellent plan, turning the combs back to front. This is very easily done in hives where the brood chamber can be lifted bodily. If, however, the combs have to be lifted separately, they should be kept in the same position to one another as before moving. This arrangement, of course, places the honey at the front and the brood at the back, the honey is inevitably removed from the front, and the cells filled with eggs. This method is always reliable and perfectly safe, as the colony extends the brood nest, and its stimulating effect is unequalled. These operations should commence about six weeks prior to the main honey flow.

A strict watch should also be kept to avoid the colony running short of food, as in proportion to the brood raised the food will be used, and by inattention prosperous stock simply ruined, the queen ceasing laying, and the bees sucking up the chyle of the larvæ and destroying the eggs. The outlay will be amply repaid, probably the same year. Swarms should, of

course, always be fed for a day or two after hiving to encourage them, especially if the weather is cold and unsettled.

Should a colony be found starving, a comb of warm sealed stores must be given next to the cluster, or if the stock is past that the entrance must be closed and the hive taken close to the fire and some warm syrup poured over the bees, after which feed them with warm syrup rapidly to place them beyond want for the time. In all feeding the sugar must be pure cane. The objection to beet sugar is that after assimilation by the bees there is more residue left than by cane, and the bees are therefore more liable to dysentery.—E. E., Sandbach.

TO CORRESPONDENTS

* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

NAME OF PAPER (J. L.).—The matter has been considered, sentiment has been strong, and nothing definite has been done. Probably the change may eventually be made. We are pleased to have your encouraging remarks.

PEACH LEAVES PALE OR BLEACHED (P. T.).—Your trees seem to be suffering from a want of iron in the soil, thus causing chlorosis of the leaves. Apply a light dressing (1½ oz per square yard) of sulphate of iron to the soil, fork in, and water.

SELECTION OF NARCISSI (J. B.).—From the various reports of Daffodil exhibitions you ought to have a very reliable guide as to the popular varieties, and you can check prices by means of a catalogue. Have you no opportunity of seeing a Daffodil show?

WOMEN'S SCHOOLS OF HORTICULTURE (P. W.).—That at Swanley, Kent; Lady Warwick's College, Studley Castle, Studley, Warwickshire; and the Edinburgh Women's School of Horticulture, at Corstorphine Hill, Midlothian, are the best known. So far, women gardeners have not made much headway in gardens. Doubtless there are good and bad amongst them, just as amongst the men.

APPLYING BASIC CINDER PHOSPHATE TO VINES (R. S.).—The basic cinder phosphate may be applied to both houses, young Vines and old ones, and should at this season of the year be left on the surface, though, in the case of old Vines, and the roots not working near the surface, it may be lightly pointed in, or as deeply as may be without disturbing the roots. In the case of the young Vines, and with the roots working in the top-dressing, it would be advisable to leave the basic cinder phosphate on the surface at least for a time, the watering, subsequent to its application, working it in sufficiently. The basic cinder phosphate, ½ lb per square yard, will not injure the Vines, if it do no good, though lime, phosphoric acid, and other constituents of the phosphate are essential plant foods, especially that of Vines, and valuable for correcting a tendency to sourness of soil and inducing a sturdier and fruitful habit.

MELON LEAVES RUSTED (F. E.).—The leaves are affected by both the rust mite (*Tarsonymus* sp.) and the Cucumber anthracnose (*Glœosporium lagenarium*), the former causing a rust like and crippled condition of the leaves, completely checking and ruining the growth. This we consider the chief cause of the rusted condition of the leaves, the other being probably only a secondary matter, and not in a malignant form. The mite causes the rusted appearance by its punctures of the tissues, and probably are of a poisonous nature, pale spots appearing on the upper surface, whilst the lower side assumes a brown, rusted, and contracted appearance. The best known preventive is spraying with tobacco water, coating the under side of the leaves with the finest possible film of the liquid, and repeating at intervals of a few days. Badly rusted plants, however, seldom recover, though we have known affected Melon plants recuperate and perfect the crop.

GRAPES SCALDED (T. F.).—Slightly increase the night temperature with ventilation to prevent the condensation of moisture on the berries, giving more air very early and gradually in the morning. Keeping vineries closed too long, then opening the lights too wide at once, causes rapid evaporation, which is most injurious to Grapes.

THINNING ASPARAGUS (Cottager).—If the plants are from seed sown this year we should dig up every alternate row next spring just when growth commences, and plant other beds if wanted. The plants in the rows may be a foot apart. A great number of useful heads may be had from plants in rows a foot apart, but to have large produce more space must be afforded. Rows 9 in apart are too close.

MANURING POTATOES (E. F. C. B.).—The dressing you propose—1½ cwt. of nitrate of soda with 1 cwt. chlorate of potash—is good, and the best way of applying it is to sprinkle it between the rows before earthing up. In many districts, and probably in yours, an addition of superphosphate will do good. We have found a mixture of potassic chloride and guano very good. A mixture of nitrate of soda, half cwt., potassic chloride, one cwt., and three-quarters cwt. of superphosphate is as good as any. If the Potatoes are growing weakly you had better double the amount of nitrate, if moderately give a little more than you allow. Often, in the case of very strong-growing kinds, nitrates are not necessary, but in your climate they may be freely applied with nothing but benefit. Occasionally potash does no good, but generally it is the most important ingredient in Potato manure. If our hints help you we shall be glad to hear of the result.

MUSHROOM SPORES AND SPAWN BRICKS (A. W.).—It has been held by many investigators that it is necessary for the spores to pass through the system of an animal to acquire the power of germinating, and we believe the opinion is still entertained by some. We have, however, heard of experiments by which it was, we understand, proved that the spores could germinate when taken direct from the Mushroom and placed in a suitable medium and temperature, but we cannot refer you to any published record of these results. The bricks are composed of horse and cow manure and sound loam, mixed, kneaded, and pressed into moulds. When the bricks are sufficiently dry pieces of spawn are inserted in them, and they are then kept warm by being covered with fermenting manure until the mycelium spreads through the mass. The covering is then gradually removed, the bricks dried and kept in a cool dry place, and it is not necessary to cover them with anything. It is almost impossible to teach a person how to make these bricks satisfactorily who has no knowledge of the work. He must see the process throughout, and even then he may fail. It is much better for amateurs to purchase spawn than to lose time in attempting to make it.

CUCUMBERS GUMMING (G. C.).—The soil is probably too rich, and may be too wet, especially on the surface. Examine it by digging to the bottom of the bed, and if it is moist there lessen the water supply; if dry make holes in the bed and pour water in. It is not possible to say how much water the plants should have, that depends wholly on the size and the conditions under which they are grown. Plants that show a tendency to gum should have no more water than will prevent flagging; and if the gumming be excessive shading must be resorted to for a few hours in the middle of the day, so as to lessen the necessity for water in order to prevent flagging. The atmosphere must be kept drier and warmer, so as to allow of freer ventilation, which will cause more rapid evaporation, and enable the plants to part with the superfluous moisture. Gumming is, however, better avoided than remedied. The soil should not be kept very wet in the early stages of growth; indeed, no more water should be given than to keep the plants in steady progressive growth until the fruit is set and swelling, when copious supplies will be necessary. Encouraging a free growth in the plants in the early stages and up to the fruiting stage, and afterwards keeping the growths closely restricted, is likely to induce gumming, as are also large reductions of growth at one time and at distant intervals.

NAMES OF PLANTS.—*Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number.* (W. A.).—1, *Pieris (Andromeda) floribunda*; 2, *Forsythia suspensa*; 3, *Pyrus* sp., not sufficiently developed; 4, *Prunus Pissardi*; 5, *Prunus sinensis rosea* fl.-pl.; 6, *Amelanchier canadensis*. (G. W. K.).—*Sprekelia formosissima*. (N. T.).—1, *Gardenia florida*; 2, *Hoya imperialis*; 3, *Hoffmannia Ghriesbreghtiana*; 4, *Pteris tremula*. (N. N.).—1, *Aphelandra* sp. (Norwood).—1, *Doodia caudata*; 2, *Adiantum reniforme*.

Covent Garden Market.—April 20th.

Average Wholesale Prices.—Fruit.

	s. d.	s. d.		s. d.	s. d.
American Limes, 400-500			Grapes, Alicante, lb. ...	2 6	to 4 0
in case	7 0	to 9 0	„ in barrel	12 0	18 0
Apples, Australian, in			„ Almeria, doz. ...	6 0	8 0
cases	9 6	15 0	„ Gros Colman, A., lb.	3 0	5 0
„ Nova Scotia, barl.	14 0	18 0	Lemons, per case ...	8 6	10 0
„ Californian, ease .	7 6	9 0	Lyehees, box	1 2	0 0
„ Tasmanian „ ...	6 0	10 0	Oranges, per case ...	8 0	35 0
Bananas, bunch	6 0	14 0	Pears, per case	7 0	17 0
Chestnuts, bag	19 0	0 0	„ stewing, ½-sieve ...	9 0	11 0
Cobnuts, per lb.	0 7½	0 0	Pines, each	2 0	5 0
Cranberries, per case ...	10 6	13 8	Strawberries, A., lb.	4 0	6 0
Figs, per doz.	12 0	18 0	„ B.	2 0	4 0

Average Wholesale Prices.—Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Jerusalem,			Onions, picklers, sieve ...	3 0	to 5 0
sieve	1 0	to 1 3	„ English, ewt. ...	7 6	0 0
Asparagus, Spruce, bundle	0 9	0 0	Parsley, doz. bnchs. ...	4 0	4 6
„ Paris Green .	4 6	6 0	Parsnips, per bag ...	2 0	2 6
„ English, bun.	5 0	7 6	Peas, lb.	2 0	2 6
Beans, dwarf, per lb. ...	0 9	0 10	Potatoes, per ton ...	90 0	146 0
Beetroots, per bushel ...	2 6	3 6	„ Frame, lb.	0 4½	0 5
Cabbages, doz.	1 0	1 9	„ New Teneriffe,		
Carrots, doz. bun. ...	2 0	3 6	per ewt	10 0	12 0
„ per bag	2 6	4 0	Radishes, doz. bun. ...	0 9	1 0
Cauliflower, doz. ...	1 6	3 6	Rhubarb, per doz. ...	0 9	1 0
Celery, per doz. bun. ...	8 0	18 0	Salad, small, pun., doz...	0 6	1 0
Cress, per doz. pun. ...	0 9	1 0	Savoys, tally	3 0	4 0
Cucumbers, doz.	2 0	3 6	Seakale, per doz. ...	10 0	15 0
Endive, per doz.	1 6	0 0	Shallots, per lb.	0 1½	0 2
Garlic, per lb.	0 2	0 3	Spinach, per bush... ..	3 0	3 6
Horseradish, foreign, per			Tomatoes, Canary		
bundle	1 3	1 6	Deeps, lb.	2 6	3 0
Leeks, per doz. bun. ...	1 0	1 3	Turnips, doz. bun. ...	1 6	2 0
Lettuces, Cabbage, doz. .	1 0	1 3	„ per bag.	2 0	2 6
Mushrooms, house, lb. ...	1 0	1 6	Watercress, per dozen		
Onions, per case	7 6	0 0	bunches	0 4	0 8
„ per bag	3 6	7 6			

Average Wholesale Prices.—Plants in Pots.

Most of the undermentioned plants are sold in 48 and 32-sized pots.

	s. d.	s. d.		s. d.	s. d.
Acacia Drummondii, doz.	12 0	to 50 0	Euonymus, vars., doz. ...	4 0	to 6 0
Adiantums, per doz. ...	4 0	8 0	Ferns in var., per doz. ...	4 0	30 0
Aralias, per doz.	4 0	8 0	Ficus elastica, doz. ...	9 0	24 0
Arbor Vitæ, per doz. ...	9 0	18 0	Genistas, doz.	6 0	10 0
Aspidistras, per doz. ...	18 0	33 0	Hyacinths, Roman (48-		
Auebas, per doz.	4 0	8 0	pots), doz.	8 0	9 0
Azaleas, each	1 6	3 0	„ Dutch	8 0	12 0
Begonias, per doz. ...	4 0	8 0	Lycopodiums, per doz. ...	3 0	4 0
Callas, per doz.	6 0	8 0	Lily of the Valley, doz....	9 0	24 0
Cinerarias, doz.	6 0	24 0	Marguerites, white, doz.	4 0	8 0
Colenses, per doz. ...	4 0	5 0	Orange trees, each ...	3 6	10 6
Crotons, per doz.	12 0	24 0	Palms, var., each	3 0	20 0
Cyclamens, per doz. ...	9 0	18 0	Primulas, per doz. ...	4 0	6 0
Cyperus, per doz.	3 0	4 0	Pteris tremula, per doz. .	4 0	8 0
Daffodils, per doz. ...	6 0	8 0	„ Wimsetti „ ...	4 0	8 0
Dielytra spectabilis,			„ major „	4 0	6 0
per doz.	12 0	18 0	Spiræas, doz.	6 0	8 0
Draænas, vars., doz. ...	12 0	48 0	Tulips, red, doz. roots. .	1 0	1 6
Eræas, per doz.	6 0	12 0	„ yellow, doz. roots	1 0	1 6

Average Wholesale Prices.—Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Anemones, doz. bun. ...	0 9	to 1 6	Marguerites, yellow, per		
Azaleas, per bun.	1 0	2 0	doz. bun.	1 0	to 2 0
Bouvardias, per bun. ...	0 4	0 6	Narcissus, doz. bun. ...	1 0	4 0
Callas, per doz.	2 6	4 0	„ Soleil d'Or, per doz.	3 0	4 0
Camellias, box	1 0	2 0	„ Pheasant's Eye „	1 6	3 0
Carnations, per bun. ...	1 0	3 0	Oreheids, various, per doz.	3 0	12 0
Daffodils, per doz. bnchs.	1 0	4 0	„ Odontoglossums „	2 6	3 0
Eueharis, per doz. ...	1 6	2 6	„ Cattleyas, per doz.	10 0	12 0
Ferns—Asparagus, bun. .	1 0	2 6	Pe'argonias, zonal, doz.		
Freneh, doz. bnches	0 4	0 6	bun.	4 0	9 0
Maidenhair, doz. bun.	4 0	6 0	Roman Hyacinths, per		
Freesia, per doz.	1 0	2 0	bunch	0 6	1 0
Gardenias, box of 18-24			Roses, Mermet, per doz. .	3 0	6 0
blossoms	4 0	5 0	„ Various, per bun.	0 6	1 6
Lilæ (French), bun. ...	1 6	3 0	„ White „	1 6	2 0
Lilium longiflorum,			„ Pink „	1 0	2 0
doz. blossoms.	4 0	7 0	Smilax, per doz. trails ...	1 0	1 6
„ laneifolium „ ...	1 6	3 0	Stocks, per doz.	2 0	2 6
„ auratum	2 6	4 0	Tulips, per bunch	0 6	0 9
Lily of the Valley, per			Violets, per doz. bun. ...	1 0	1 6
doz. bun.	6 0	15 0	„ Parma „	1 6	2 6
Mimosa (Acacia) per bun.	0 6	1 0			

Trade Catalogue Received.

Richard Smith and Co., Worcester.—Climbing and other Plants.

TO KILL PLANTAIN, DANDELION, and other of the rosettes, drop crude carbolic or sulphuric acid into the centre. Or, in winter strike with the spud under the heart. In the garden, if there is no other soil cover for winter, these do good rather than harm. A little persistent cutting in the spring will clear them out.



A Plant Ailment.

Among the most valuable fodder crops may be counted that of red clover (*Trifolium pratense*), and it is a native of Great Britain. In consequence of its value, every farmer would fain grow as much of this plant annually as possible, but it has a nasty trick of disappointing the growers. It cannot be depended upon to do well on the same land if planted oftener than once in four years; indeed, on some soils, even with that space of time intervening, the fresh crop is an absolute failure. This tendency of red clover to fail is no new thing: it has been observed for upwards of 100 years, and it has engaged the attention of botanists and scientists for quite that length of time. If a remedy could be found it would be the means of putting annually vast sums of money into the farmers' depleted pockets, and through them the money would percolate to the advantage of the community at large. So far, no one seems to have hit on any cure; indeed, it is only of late that the disease has been fairly diagnosed, but we think this being the case we are on the high road to a cure; at least there is more chance for the doctors.

A well-known writer declares he is only able to get a full plant of red clover every eight years, and he also observes that in fields of his own which have not seen clover for thirteen or twenty years, when the crop was planted it was more or less of a failure. The question has been mooted, and has the support of practical men, that in taking so many corn crops as we do, we exhaust the land of that particular form of nourishment that the clover needs; and also that the constant sowing of vetches (tares) and beans will injure the chances of the future clover. Beans are very little grown now. As one farmer says, we may safely leave our bean supply in the hands of the Egyptians; but vetches are greatly on the increase, they make such capital "keep," nutritious, and luscious when other crops are scarce. We have been told that the failure of clover can be remedied by a good dressing of lime, and also we have been told that the average farmer failed on his part to supply this lime or other equivalent (N.B.—The farmer is always in the wrong).

All of us have heard of the great experimental works that were conducted for many a long year at Rothamsted, under the auspices of those pioneers of agricultural chemistry, Lawes and Gilbert. Well, these men were acquainted with clover sickness, and as far back as 1849 began a series of experiments to try and fathom the reason for, and the cure of, this complaint. They tried continuous sowings with and without manures (be sure that with them the applied manures were just what the plant appeared to need). In 1849, the crops were very heavy. In 1852 fair crops, and then up to 1871 no full crop has been grown at all, nor even a plant that would stand the usual time in the ground. The plant died off in winter and early spring.

Not to be beaten, another experiment was made of continuous clover growing in a portion of the kitchen garden at Rothamsted, and in this case it was twenty-two years before signs of failure occurred; exactly the same signs as those found on the field growths. We here quote from memoranda of the Rothamsted experiments in respect to clover growing:—

"The general result of the experiments on ordinary arable land in the field has been, that neither organic matter rich in carbon, as well as other constituents, nor ammonium salts, nor nitrate of soda, nor mineral constituents, nor a complex mixture applied as manure availed to restore the clover-yielding capabilities of the land; though where some of these were applied in large quantity, and at considerable depths, the result was better than when they were only used in moderate quantities, and applied only on the surface.

"On the other hand, it is clear that the soil in the garden, which at the commencement contained in its upper layers about four times as much nitrogen as the arable land, and would doubtless be correspondingly rich in other constituents, has supplied the conditions under which clover can be grown year after year on the same land for many years in succession.

"The results obtained on the soil in the garden seem to show that what is called 'clover sickness,' cannot be due to the injurious influence of excreted matters upon the immediately succeeding crop. That clover frequently fails coincidently with injury from parasitic plants or insects cannot be disputed, but it may be doubted whether such injury should be reckoned as the cause or merely concomitant and an aggravation of the failing conditions.

"The results of the experiments seem, therefore, to exclude

the supposition that the primary cause of failure is either destruction by parasitic plants or insects, injury from excreted matter, or the shade of the corn crop, and to indicate that it must be looked for in exhaustion of some kind within the range of the roots."

This disease of clover begins on the leaves and stem, and never in the root. Early in the winter a stricken plant will become discoloured and covered with blackish spots first on the leaves, but speedily on the stems. This is caused by a fungus spawn. Presently there are further developments in the stem and crown of the root, and the plant speedily succumbs. The hardened spawn or mycelium (sclerotia) are to be found in the soil, round or oblong, sometimes as big as a pea. These will remain dormant in the soil for a lengthened period, just waiting for the next crop that will give them harbourage and support.

The late Sir Henry Gilbert found in the garden plot (10sq yards) after the failure of the clover crop in 1898, 6oz of sclerotia, or 181lb to an acre! No wonder the infection abides! Lucerne, trefoil, and in a measure white clover, are liable to attacks of the particular fungus sclerotinia; but so far we have not heard of tares falling victims, for they certainly are leguminous plants.

The fungus of the Potato top with which we are mostly acquainted, yields entirely, or is greatly retarded, by spraying with Bordeaux mixture, but it is questionable whether the dressing that leaves the Potato top uninjured would suit the more delicate texture of the clover leaf. We have very little doubt that in process of time a mixture will be compounded which, if applied in the earliest stage of the disease, will check the ravages, and that by a vigorous stimulant in the form of some combination of manure, the plant will be able to triumph over the enemy.

Is there not also here scope for seed raisers? We hear of new varieties of wheat and other grain; Potatoes, turnips, and mangolds, have been improved and strengthened almost beyond conception, and the number is always increasing. Surely there are districts and countries where red clover is found clear of disease. We have said again and again how much wiser it is to grow the strong and healthy, than to be continually doctoring the weak. If Gilbert and Lawes could not find or devise remedial manures it seems hopeless to expect it of the ordinary farmer. Either he must be content to give his land the necessary rest, or grow from stronger, healthier seeds, or find out or accept some other forage plant equally valuable as red clover. There is a great deal of latent conservatism in the farming mind, and we do not take easily to new ideas until we are fairly forced into them by circumstances.

In the case of Potatoes we have been forced into the adoption of new varieties, simply because what were popular ten or twelve or even three or four years ago are found to be quite worn out and useless, yet we do not give up Potato culture, but avail ourselves of the new varieties placed on the market. There is a feeling abroad that English clover seed is the best, that the foreign seeds—Lowland Dutch, Normandy, Chili, &c., may be good, but that owing to the lack of proper cleaning in parcels of these we are liable to get noxious weeds which we can well dispense with.

Work on the Home Farm.

We have had a week of very strong drying winds, which have had great effect on the land. On light and medium soils it has been entirely favourable, but on strong the drying process has been too rapid, and, in spite of the constant use of the roll a good seedbed has not been obtained as yet. A farmer of strong land tells us that he has abandoned any further drilling until rain comes. We must congratulate ourselves that on our more easily worked land we have been able to sow satisfactorily.

A friend who farms a quantity of low-lying black soil is only just commencing to sow, as, until drier weather set in, there was little likelihood of getting a seedbed. Now the water is all gone he is hard at work, with good results. The work we were most anxious about, viz., preparation for mangolds, has perforce been left over, for we dare not drag and harrow for fear of losing too much surface moisture. We have therefore left that breadth of land alone, and have put all our forces into the swede and turnip fields.

In these we are not afraid of losing moisture for the present, so the spring cultivators, followed by harrows, rollers, and harrows again, have given the greater part of our fallows a grand raking over, and we have what is left of the annual supply of twitch in condition for burning. We know that twitch burning is said to be poor economy, but it costs much less than carting off, and artificial substitutes are not dear. We think that the small bits of which the present crop chiefly consists are much safer when burnt, and we shall burn, this time at any rate.

If the labour can be afforded, manure which has been carted into hill should be turned over to prevent overheating. Manure in the yards, too, if it is required for this year's root crop, should be turned over where it is. It will then be found in good order for distribution when the time for that work arrives.

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Journal of Horticulture.

THURSDAY, APRIL 28, 1904.

The Season of Blossom.

ACCORDING to a time-honoured theory, a fine autumn with plenty of sunshine to ripen up fruit wood is essential in order to secure a crop the following season. If this be a rule without exceptions, then it is hopeless to expect much fruit in the coming summer, for, as everyone knows, last autumn was a time of gloomy skies and continued rains; but Nature is not governed by theories, and has a peculiar method of her own of upsetting them, so that there is no need to dwell too much on the past when considering the promise of the future.

Why should we not have good fruit crops this year? Setting aside the ripened wood theory, there is at the moment of writing no apparent reason whatever, for all through the past dismal winter the wood has carried a firm and healthy look, and mid-April finds some trees covered with blossom whilst others will be similarly clothed ere long, judging from the swelling state of the buds. Above everything else a good fruit year is wanted, for while commercial growers naturally wish to recoup themselves after the disaster of last year's famine, the shelves in the fruit-rooms in private establishments have been employed for the winter storage of Potatoes and Onions instead of Apples and Pears, and the jam-pots in the domestic cupboard are lamentably empty of home-made preserves, than which there is none so good.

We have fallen into the way of lamenting the fact that the foreigner is a strong competitor with the British grower of fruit, and it is urged in some quarters that the latter suffers in consequence. Quite so, but where should we have been during the past winter and up to now without foreign supplies? Practically fruitless, and, curiously enough, not a word is said about the foreign productions when the home grower has nothing to sell. Bless me! even the strongest supporters of home industries have been tempted to indulge in a few foreign Apples and Pears,

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

with the reasonable excuse that they must have them or go without. What is one man's ill luck is another man's good fortune, and I guess there are many men on the other side of the Atlantic who are all the richer on account of the disastrous frost of last April, which so utterly dashed the hopes of British growers.

Will this year's blossom be fertile? moans the pessimist who clings tenaciously to the ripened wood theory. I have examined some early blossoms, which seem all right, and there is no reason to fear that the bloom yet to come will be unable to perform its proper functions.

Through the windows we look out on an orchard containing a variety of fruits, including Apples, Pears, Plums, and Damsons. Looking out on this orchard almost every day for months, we have watched the gradual change that has taken and is still taking place, and hailed with a degree of pleasure the bitter east wind of March, which whistled through the branches and hurled powdery snowflakes here and there, for the cold was keeping the buds in their places; but with the warmer weather experienced since April came in a change has come about. Some of the earliest Plums are already in bloom, the Pears will be sheets of whiteness in a few days, and an examination of the swelling Apple buds reveals the fact that, whatever the crop is, there will be no shortage of blossom. By the time these lines are in the hands of the reader the orchard, along with hundreds of others, will be all a-blooming, and in the hearts of growers of every description there will be a deep-felt anxiety for favourable climatic conditions till after the flowers are set.

Is there any season of the year more delightful than when fruit trees in gardens and orchards on every side are gay with blossom? Surely not; and the country is a place worth living in at this time. Unfortunately for the perfect enjoyment of the floral picture, there is always the harrowing fear that a frost may come any night and ruin the whole prospect, as it did last year; and therefore, though one would gladly see the time of blossom last longer, there is a general feeling of relief when the pink and white petals flicker to the ground, and the crop has passed safely through its first and most trying ordeal. To us, no floral picture is more beautiful than that presented by a Cherry orchard when in full bloom. It is not everyone who has the privilege of this feast, for the monopoly of Cherry culture in Britain is practically held by the County of Kent, where the fruit grows to perfection.

Take at random the stretch of country from Faversham, through Sittingbourne, and on nearly up to Chatham; it is a country of Cherry orchards, and the eye of the traveller rests, mile after mile, on a sea of pink and white blossoms, with the delicate tint of the bursting foliage interspersing the flowers. Those pearly blossoms represent thousands of pounds if all goes well, but an adverse pinch of weather is enough to write ruin on that fair scene, just as the word was written with telling effect only last season.

Deprive the fruit-grower of hope, and his life would hardly be worth living; and because Cherries failed last year, that is no reason why they should do so again this; and it is well known that whatever happens later, there can be no possible chance of fruit without flowers. Neither are fruit growers readily daunted, for in Kent, in spite of the bitter experience of last year, a good deal of planting has been done, and year after year fruit culture becomes a more important industry in the southern county.

There can be no single householder in the country to whom the season of fruit blossom has not a special interest, and even "the man in the street," who scarcely knows one fruit tree from another, is glad to hear when prospects are good, as he has reason to be, for it makes much difference to him. After all, the home grower is the strongest power in the supply of the fresh fruit commodity, for though the foreigner does much he cannot do everything, and when the crops of quickly perishable fruit fail, or partly so, the individual consumer feels he has not been able to get a sufficiency of this wholesome food, or perhaps none at all. It is said that Britons do not eat enough fruit. Perhaps not; but still, they consume a good deal, and they miss it when it is not forthcoming. And here one may say that they would probably dispose of more in seasons of plenty if some better means could be devised of conveying it from the producer to the consumer, at prices that would pay the former, and yet not be above the pockets of the working millions of the latter.

Perhaps things will work themselves right in this respect if given time, and for the moment our concern is blossom. Now we are enjoying the fulness of its beauty; a few months hence we shall be enjoying the luscious fruits. We may well contend that the season of blossom is one of momentous interest and concern to the highest and the lowest, the richest and the poorest.—G. H. H.



Cattleya Schröderæ.

The variety of this handsome *Cattleya*, that was exhibited by Mr. J. Gurney Fowler at the meeting of the Royal Horticultural Society on April 19, and named "Fowler's variety," served to draw attention to the species and the forms from it. Mr. Fowler's novelty is the best to date in point of size, and probably also in the beauty of its colouring; but *C. Schröderæ* (thought by some to be only a variety of *C. Trianae*), is an admirable plant for any collection. The typical flowers are usually wholly rosy-lilac, excepting the orange-yellow through the centre of the lip, and it is pleasantly Hawthorn-scented. Pure white varieties sometimes occur, but the species seems to vary a good deal, and various shades of colour may be found. The plant is of good constitution, and does well with the usual *Cattleya*-house treatment.

Cultural Notes: *Dendrobiums*, *Diacrium bicornutum*.

Dendrobiums are rapidly becoming more plentiful in flower, the earliest sorts, such as *D. nobile*, *D. Wardianum*, and others being in full beauty. It is too soon yet to increase the root moisture much, but rather more in the atmosphere will be an advantage until the flowers show colour, when less will, of course, be needed to conserve the latter. The same holds good with the later flowering evergreen species, as *D. densiflorum* and its allies, *D. chrysotoxum* and *D. Farmeri*. Shrivelling must be carefully avoided with new growths, but if sufficient moisture is present to prevent this all will be well.

D. chrysanthum and *D. calceolare* are growing freely, and new roots are forming; this necessitates a high temperature, with abundant moisture in the air to prevent insects getting a footing upon the tender foliage. The value of tepid soft water as an insecticide for such plants as grow rapidly is not sufficiently known. It is, of course, perfectly safe to use daily or twice daily in hot weather, and no insect can live where it is used. In addition, it is an excellent growth stimulant. A thorough washing from the syringe does more to recuperate the plants after a hot drying day in spring than any other method that can be practised.

A beautiful plant now in flower, that delights in this hot, moist atmosphere, is *Epidendrum* (*Diacrium*) *bicornutum*. Found growing naturally on exposed, wave-washed rocks in Trinidad, no amount of sun heat and atmospheric moisture seems too much for it, provided the roots are vigorous. It has never been a full success under cultivation, but much of the injury is, I am convinced, caused by the frequent pulling about at the roots some cultivators appear to think necessary. I have had it for seven or eight years running in the same pots, with only a little sphagnum moss and crocks for the roots to run in, and each season its large, hollow, horn-like pseudo-bulbs increased in size; but directly they were disturbed at the roots a backset occurred very difficult to arrest.

I strongly advise anyone who is starting its culture—it is the most beautiful of all *Epidendrums*—to do so with newly-imported plants, to pot them as soon as received in fairly large receptacles, and to use very little, if any, peat in the compost. The sun may shine fully upon them, provided the atmosphere is always moist, and as much air as possible, consistent with a very high temperature, should be allowed during its season of growth.—H. R. R.

Floral Decorations.

Tasteful floral designs are frequently to be seen in florists' shops of the West End, London. Double white Stocks are the only utilisable flowers at the moment for "lining" the framework of wreaths and crosses. By lining, we mean the formation of an even, level surface composed of flowers close set. A large wreath lately seen was furnished with double white Stocks, with a bouquet of Valley Lilies, *Lilium Harrisii*, and white *Caladium* leaves—*C. candidum*. A cross (the cross piece set diagonally) was also covered closely with white Stocks, and here and there bunches of Valley Lilies, with blooms of *Dendrobium Wardianum*. A large bunch of Lilies occupied a position near the base of the upright.

A square basket filled with *Chorizema*, *Anthuriums* with crimson spathes, and *Asparagus flexuosus*, was pretty and effective. A basket containing crimson *Ericas* and the richest crimson decorative *Pelargoniums* we have hitherto seen, was worthy of note. Ribbon to match was looped and "bowed"

round the basket. Yet another basket was done all in pink; with Roses, Ivy-leaved Geraniums, Prunus, Almond, &c. A few Lilies gave greater lightness. A wreath done in deep blue Forget-me-nots, with a spray bouquet of Valley Lilies, was fair. A fan made of white Stocks fringed with Gypsophila, and having dark green "baby-ribbon" ($\frac{1}{2}$ in breadth) radiating evenly outward all over from the centre, was very fine. Placed gracefully across the middle of the fan was a tiny selected spray of Crimson Rambler Rose, all so artfully disposed that no critic could find fault with the execution. A basket filled with mixed yellow and crimson Primroses in pots had a poor effect. Had the basket been entirely occupied with rich yellow* and primrose varieties, with richer coloured ribbon around it, a grand effect would have resulted. A cross, with purplish-mauve Pelargoniums and Cattleyas, was exceedingly beautiful.

Gadding and Gathering.

A Sarracenia Specialist.

A specialist in Sarracenias Mr. A. J. A. Bruce, The Nurseries, Chorlton-cum-Hardy, certainly is, but he has other interests to look to, in his thriving business near Manchester. New varieties of plants that possess a market value have constantly to be tried, and old things possibly improved on. Mr. Bruce makes a yearly visit to the Temple Show, and his usual place will again be occupied in due course with the beautiful and curious plants he so well cultivates. The Sarracenias have been flowering freely at Chorlton this year, but that has in no way lessened the amount of leaf or pitcher growth. As a hybridist, Mr.



Cattleya Schröderæ.

Spanish Irises, Sweet Peas, and Gypsophila are among the flowers now on the market.

An illustration in the "Florist's Exchange" represents a floral horseshoe, made by the Art Floral Company, Inc., of San Francisco, Cal., and presented by the Rounders' Club to Mr. Kennedy on the occasion of his first appearance at the Fischer Theatre of that city. The design stood about seven feet high, and was entirely composed of Bridesmaid and Meteor Roses.

At a dinner given at the Waldorf-Astoria recently by George H. Munroe, representing the Marconi wireless telegraph system, to the New York Press, the floral decorations by J. H. Small and Sons were unique. The scheme represented an extensive country scene, mountains, glens, lakes, rivers, houses, barns, windmills, all reproduced in exactness by the clever skill of the florist. Through this elaborate landscape was represented the old-fashioned telegraph poles, wires tangled, cut, and running in every direction, illustrating in miniature their uselessness when compared with the Marconi wireless system.

Bruce has made successful attempts with these plants, and he has set his mind upon transmitting some of the coloured net-veining into the green and yellow-pitched varieties. In all he grows 26 varieties; Droseras and Dionaea muscipula, together with Cephalotus follicularis and the monotypic Darlingtonia californica (imported plants) are amongst others of these insectivorous subjects, which one finds more largely here than almost anywhere else.

The Fairy Orange Moss (*Nertera depressa*), which usually flowers and berries so profusely at Chorlton, is shy this season, though the plants are in first-rate condition. Plumbago rosea is never out of flower, and adds considerably to the brightness of the houses. Ferns and a miscellaneous collection of market plants occupy many of the houses, and decorative "Geraniums" are grown in considerable numbers, as well as bedding plants. Marguerite Golden Sun, though not seen in flower, was here; and the highly meritorious "Geranium" named Beauty, with rosy scarlet flowers and fine bushy habit, make two very choice and beautiful plants for greenhouse or for the decoration of

the home. *Fuchsia Countess of Aberdeen* is liberally grown and *Pteris Alexandra* furnishes a good fern, either for cutting from or for other purposes.

The Greenhouse, Kew.

The greenhouse in the Royal Gardens, Kew, being a model in the variety and beauty of its collection of plants, can furnish an interesting and useful paragraph at all seasons. The subjects now abloom comprise all that are commonly to be found in average greenhouses and conservatories of private gardens, together with some that are not. It is the rule at Kew to try new plants, that is, plants which have for a time been overlooked and neglected, and, having agreed upon something a little out of the common line; and to cultivate a sufficiently numerous batch to make a brave display. High culture is aimed at, and, except in a few instances, I think the men in charge succeed exceedingly well. The system of arranging the plants in batches (advocated sixty years ago by London as the best and truest to the laws that govern art and beauty), by themselves, with perhaps another batch, either of taller or dwarfer plants, intermixed for a contrast, is one which affords a practical lesson to us all.

To the plants, then, and the following might be named:—*Arctotis aspera*, 6ft high, with seven to eight shoots, terminating in clusters of the richest orange composite flowers: a splendid greenhouse subject; *Scutellaria mociniana*, with deep scarlet labiate flowers; *Tetratheca pilosa*, with showers of mauve flowers, an illustration of which appeared in the *Journal* for May 30, 1901.

Another mauve-purple flowered gem is *Erica propendens*, which has come prominently to the front. *Lathyrus pubescens*, with blue flowers freely produced, comes from Chili, and furnishes an admirable climber for the roof. Planted out in a border under the stage, the plants have made 10ft of growth. Also on the roof is *Clianthus Dampieri*, *Lonicera sempervirens* (Trumpet Honeysuckle), and *Fuchsias*. *Crocea angustifolia*, with five-petalled, pink flowers, is representative of an order of plants that furnish many horticultural favourites, and one of the Myrtaceæ is seen in *Darwinia Hookeriana*, with reddish-chestnut pendant blossoms. *Azalea indica Illuminator* is a single variety of the highest excellence, the bright magenta-rose of the corolla being very beautiful and effective. *Polygala myrtifolia grandiflora* is a fine old subject—at least, the type is; and the odorous-leaved *Agathosma rugosa*, with dull white flowers, is also an ancient friend. *Begonia echinosepala* may be compared to *B. Haageana* or *B. incarnata*. It flourishes in the cool greenhouse, and makes a massive resplendent plant. A few sweetly-coloured (primrose-yellow) *Auriculas*, named “*Queen Alexandra*,” on a corner of one stage, deserve notice, while the lovely grass which has been specially mentioned in these pages in a recent issue, and named *Arrhenatherum erianthum*, presents an exquisite scene beneath *Dielytra spectabilis*. *Funkia ovata anreo-variegata* as an edge-plant may be noticed, and numerous displays of *Spireas*—*Van Houttei*, *confusa*, *japonica*—are employed. The *Amaryllis* are very fine, and fill one of the ends. *Acacia pulchella* and *A. armata* are both specially fine, and a large *Rhododendron*, brought in from the open, almost fills a centre bed. The new *Corydalis thalictrifolia* as a pot or basket plant is uncommonly successful.—WANDERING WILLIE.

The Small Holdings Association, Ltd.

An estate has been acquired known as Cudworth, near the pretty village of Newdigate, in Surrey, and about 2½ miles from Holmwood Station (which is 31 miles from London Bridge and Victoria), 6 miles from the market town of Dorking, 8 miles from the market town of Horsham on the mid-Sussex line to Brighton, Worthing, Bognor, and other important seaside towns, 6 miles from Horley, and 8 miles from Redhill on the main line from London to Brighton. It has been acquired for the purpose of supplying small holdings of land to selected persons who intend to live upon and cultivate it, and areas of from 3 to 25 acres in extent are now offered for sale. The land is chiefly first-rate grass on a clay loam, and is specially suitable for garden farming, a stream running right through the property. There is, however, some excellent arable land still for sale. Purchasers are required to pay down 10 per cent of the cost price, and the balance in half-yearly instalments extending over 10 to 15 years, with interest at 5 per cent, when the property will become their absolute freehold. Buyers of the larger areas will be able to use portions of the excellent farm buildings, which will be allotted to them at a nominal annual rental. The cost of the land varies from £20 to £30 an acre, or thereabouts, free of law charges, and on the area purchased buyers are required to pay the cost of the cultivation where the land has been ploughed, manured, or sown, together with the tithe and rates—both quite small. Applications should be made to the secretary, Cudworth Manor, Newdigate, Surrey.

NOTES



NOTICES

Lord Redesdale.

We are informed by the secretary to the Royal Horticultural Society that Lord Redesdale has been awarded the Victoria Medal of Honour in horticulture. He is the latest recipient of it.

Narcissi from Tilgate, Crawley.

Owing to the crowded nature of the Drill Hall and pressure of work at the exhibition of the Royal Horticultural Society on April 19th, our reporter omitted to notice the collection of Daffodils staged by Mr. J. A. Nix (gardener, E. Neal), from the gardens at Tilgate House, Crawley, and which received a silver Flora medal.

Re-afforesting of the Black Country.

A large and successful gathering, under the auspices of the Midland Re-afforesting Association, was held on Thursday, April 21, in the Town Hall, Wednesbury, for the purpose of hearing an address from Mr. P. E. Martineau, on “The Re-afforesting of the Black Country.” At the close of the address a committee to assist the Midland Re-afforestation Association was formed.

The T-range, Kew.

Among the interesting plants in flower here are *Erica coccinea*, *Tritonia speciosa*, *Scilla peruviana*, *Brodiaea speciosa*, *Anoiganthus breviflorus*, and *Ornithogalum arabicum*. These are in the Cape-house. In the warm houses are *Gesnera cardinalis* (red) and *G. regina* (violet-blue). *Physostelma Wallichii*, with palest creamy flowers like those of a *Hoya*, is on the roof; while the evil-smelling *Dracontium gigas*, with chocolate-red spathe, was opening on Saturday last in the Victoria Regia house. The bed for the reception of the latter has been built, and the plant will shortly be planted. *Cochlostema Jacobiana*, with bright, showy, blue flowers, is very rarely met with in cultivation.

Royal Horticultural Society.

The next fruit and flower show of the Royal Horticultural Society will be held on Tuesday, May 3rd, in the Drill Hall, Buckingham Gate, Westminster, 1.5 p.m. At three o'clock a paper on “Enemies of the Apple Tree,” by Mons. Chas. Baltet, will be read. At a general meeting of the Royal Horticultural Society, held on Tuesday, April 19th, 51 new Fellows were elected, making a total of 498 elected since January 1.

The Right Hon. Lord Redesdale has been compelled to resign his seat on the council of the society owing to illness in his family necessitating his absence from England. The council have elected W. A. Bihey, Esq., of Fir Grange, Weybridge, to the seat on the council thus vacated by his lordship.

Elementary School Gardens for Warwickshire.

A new departure on the part of the Education Committee of the Warwickshire County Council is certainly a step in the right direction. The School Management Sub-committee states in its report that it has sanctioned elementary school gardens at a number of places in the county, with the significant addendum: “As the Board of Education have declined to express an opinion whether a local education authority may provide land for school gardens for the use of children attending non-provided schools, we have required managers of non-provided schools at which there are no school gardens to provide the land at their own cost.” The scheme briefly is this: that each pupil—who must be over 13 years old—shall be given an opportunity to study practical gardening out of school hours. A plot of land will be allotted to him exclusively, on which methods of growing bush fruits will be demonstrated by an efficient teacher. The classes will be held at least twice a week during spring and summer, and notebooks recording the various operations and the time and manner of performing them will be kept by the pupils themselves, under the superintendence of the local instructor. The Staff-instructor of Horticulture will attend to inspect the ground at periodical intervals, and explain the system of laying out and cropping the plots and other matters incidental to successful gardening.

Potatoes and the Food Supply.

Professor Malden has lately come forward to tell the Royal Commission on Food Supply in Time of War that the only one way to restore prosperity to agriculture and to check rural depopulation, as well as enable the United Kingdom to be altogether independent of colonial or foreign food supplies, is to treble our area under Potato crops. If we grew 4,000,000 acres, instead of little more than 1,000,000 acres of Potatoes, "we could rely on 6 tons per acre, and secure 24,000,000," which "would give half a ton to every man, woman, and child in the country."

Weather Notes from Hamilton, N.B.

The last few days of seasonable weather have wondrously forwarded vegetation. A cold, wet, and cheerless spring has terminated suddenly in a warm and genial atmosphere, with the result that many trees are fast expanding their buds. In this respect I do not remember to have before seen the process of transition so sharply defined. Only a few days ago buds were very much in their dormant condition (with the exception of the *Salix*); but to-day Planes, Poplars, and Larches are all but expanded into leaf form. Here is a very good illustration of the theory and practice of retarding plants for forcing.—D. C.

Croydon Horticultural Mutual Improvement Society.

A brilliant day of sunshine was most favourable to the spring exhibition of this society on April 20. The exhibition was held at the Art Galleries, Croydon, and, indeed, to look from one end of the rooms to the other was a picture to impress upon the minds of the visitors that Spring in all her fulness and beauty had arrived. On closer examination of the exhibits, we found the bulbous flowers were very prominent in their bright colours, and the alpine and flowering shrubs in their magnificence, together with the products of the greenhouses, contributing visit. When we think that all this display is made for no monetary benefits whatever, but simply to encourage the love of horticulture, this society is to be congratulated in its unique of horticulture, this society is to be congratulated in its unique and edifying undertaking. The exhibits were more numerically and of greater varied forms than previous years.

The Influence of Flowers.

At a recent election in Chicago a Republican majority of 1,200 in one of the city wards was turned into a Democratic majority of 2,293. The result, it now appears, was the triumph of aesthetics over a gross materialism. The defeated candidate belonged to the old electoral school, and trusted to beer. The successful one tried something new. He spent over £1,000 in flowers. For Easter he decorated twenty-six churches. He sent Roses and Carnations to every home. Every girl in the ward had a bunch of Violets and every man a lapel-bloom. His headquarters were a riot of colour, calculated to stare an Italian sunset out of countenance. The platforms at his meetings made a peacock look like a dun penguin, and his parades were bridal processions. Chicago, stung by Sir Philip Burne-Jones's remark, that it was so ugly and non-appreciative of the beautiful that the wonder was it continued to exist at all, rallied to the floral politician in a burst of artistic patriotism. Boutonnieres triumphed, and beer was vanquished.

A Handsome Japanese Maple.

A more attractive feature for any lawn than a well-developed specimen of the cut-leaved Japanese blood-leaved Maple could not be secured. Its beauty appeals to everyone, and its shapely, compact habit of growth adapts it for general use on either large or small grounds. Its style is both pretty and uncommon, the branches showing a tendency to gracefully sweep toward the ground; and the foliage making a brilliant display of a bright, blood-red tint, which gradually shades out to a green as the heat of summer grows more intense. The richness of colour returns as the cooler days of autumn approach. The leaves are finely cut and fern-like in appearance. In form this variety is as broad as it is tall. Its maximum height is from 5ft to 7ft, and when of this size is very old, and of immense value. It is hardy in many parts of England. Nursery grown specimens of this plant will give sure results. This and other Japan Maples make excellent lawn specimens as individuals—when their slow growth and small maximum size are great advantages—or they may be massed in moderately sized groups.

Weather in South Perthshire.

There has been a slight touch of frost on a few mornings of the past week, but on the whole seasonable weather for both farm and garden has prevailed during the past fortnight, sunshine and shower alternating. The 18th was a very fine day. Since the 23rd there has been a succession of cold days, with west wind, and this continued up to Monday.—B. D., S. Perthshire.

Feltham and District Gardeners.

We are gratified to be able to report the continued success of this well deserving district horticultural society. The second annual report has been issued, and includes the names of a large number of members. Bound up with this report is the schedule of prizes offered in competition at the third summer show, which will be held in Feltham on July 20th. The secretary is Mr. J. Mercer, Briden Villa, Ashfield Avenue, Feltham.

Market-gardening Notes.

In all probability the consignments of Broccoli last week for the up-country markets from Marazion, Cornwall, were the heaviest for the season so far, one Marazion firm alone having despatched about 1,000 crates. Prices have, in consequence of the increased supply, dropped considerably since Easter week. Whilst good selected Broccoli still command fair prices, ordinary heads are returning from 2s. to 3s. per crate after expenses are cleared, and low grade stuff from 1s. per crate downwards. In some instances, however, many consignments of this class did not clear expenses last week. There are indications that the temporary glut in some of the large markets had cleared by the end of the week, and hopes are entertained that prices will be somewhat higher for this week. The early Potato crop is looking well, and so far is untouched by frosts.

State Encouragement of Timber Growing.

In the House of Lords Lord Barnard called attention to the report of the Departmental Committee on British Forestry, and asked the President of the Board of Agriculture and Fisheries whether His Majesty's Government proposed to take any, and if so, what, steps to give effect to the recommendations of that committee on the subject of education, instruction, and training in forestry. He thought they would all agree that far too little attention was paid in this country to the growth of timber. The Earl of Onslow said the question was one of great importance to the country at large. They were informed on expert authority that the supplies of timber which we received from foreign countries were diminishing, and that in all probability in the far future, if not the near future, the value of timber was more likely to rise than to fall. There were in England, Scotland, and Ireland large areas which yielded very little return, but which might yield a greater return if planted with trees. The Commissioners of Woods and Forests had already established a school in the Forest of Dean, which would be primarily for the purpose of educating men of the class of woodmen. There was a similar institution at Kew for gardeners. His Department had no responsibility in regard to Scotland, but the Scotch Office had not been more supine in this matter than the Board of Agriculture in England. He was informed that through the agency and assistance of the Office of Woods and Forests communications had been entered into between certain Scotch landowners with a view to securing a suitable area of forest land for the purpose of planting in the manner which was suggested by the Departmental Committee. The Board of Agriculture had approached the Treasury, and had been promised assistance in the foundation of at least two forestry schools in England. He was not yet able to say where they would be established, but he would like to have them in two localities, and to devote one to the training of woodmen and the other to the training of young men who were likely to become landowners or land agents. The Durham College of Science or the University of Bangor would provide the requisite materials for the instruction of young woodmen, but he would prefer the second school to be attached to one of the great Universities. The question remained open, however, until they knew the decision of the Secretary of State for India regarding the continuance of Cooper's Hill College. His department was anxious to encourage the science of forestry, and he believed that a small beginning might lead in the course of years to great results.

Notes on Irises.

Iris Haynei.

During the past three or four weeks notes have appeared in the gardening papers briefly describing this new Cushion Iris from Palestine, and which has been twice certificated when staged by Messrs. Cutbush and Sons, of Highgate. It was certificated at the Royal Botanic Society's first exhibition, and again at the Royal Horticultural Society's meeting on April 19. Our illustration shows a flower considerably reduced. The magnificent, silky-looking flowers measure 6 in from the tips of the standards to the tips of the falls. The standards are blue-purple and grey in various shades. The falls measure 3 in across, and are deep brown at the margins, with an intense, glistening, satiny spot in the centre, this being a feature of beauty and distinctiveness. "Compared with others, it has the falls of *I. sofarana* and the standards and habit of *I. atrofusca*." These *Oncocyclus* Irises are difficult to cultivate to success.

Iris tuberosa, "The Widow."

In the quaint little *Iris tuberosa* we have an example of the many plants which supply ample fields of discussion for the botanists, and which, in consequence of the disputes of these scientists, give great trouble to the fraternity of gardeners. It is not at all pleasant to be told that the plant we have long known as so-and-so is now something else. *Iris tuberosa*, however, is a plant upon which differences of opinion are inevitable, for it is not only doubted whether it is an Iris or something else, but even to those who are certain that it is an Iris it presents another problem, and this is, whether it is a bulbous or a tuberous Iris. The truth appears to be that it is both; for, as Sir M. Foster says, "It is a bulb when a baby, and becomes a tuber as it grows old!" These matters are, however, of less interest to us than its qualities as a garden plant, but here, again, we are upon debatable ground.

Iris tuberosa, as might indeed be gathered from its popular name in some parts—The Widow—is not a brilliant flower, yet there is something attractive about its quietly-coloured flowers. The blade of the fall of the flowers is of a deep velvety black or black purple, and the ground colour is of an olive green, while the rest of the flower is of a greenish-yellow, with a combination of lighter streaks and shadings. A high authority on matters of taste says that *I. tuberosa* in its colouring is especially charming, and this is an opinion which those who have studied it will endorse. Yet the ordinary looker-on will think it dull and deficient in brightness. Its leaf is rather like that of the more lovely *I. reticulata*, while the tuber, when at full size, is as an authority remarks, like that of a deformed Potato. In fact, there is about the whole plant an anomalous character which puzzles many. It seems wonderfully little known, and I have frequently had plants sent to me to name.

These were, however, principally from the south of our islands, and this is just what one may expect, seeing that it is not a certain bloomer, and likes a warm place and a calcareous soil. Its leaves are often injured by spring frosts, and some have recommended that it should be lifted and replanted annually. This is not always satisfactory, and one had better leave it in the ground all winter and summer and take the risk. It is a very old plant in gardens, having been the "Velvet Flower-de-Luce" of Parkinson, and the other genus to which it has been attributed by botanists is that of the *Hermodactylus*. It is widely spread over the continent of Europe, and is a doubtful native of England and Ireland.—S. ARNOTT.

The Resting of Plants under Cultivation.

(Continued from page 337.)

TUBERS AND BULBS.

The name tuber is given to any swollen part of a plant in which reserves are stored up, except bulbs and leaves. Thus, it may be of stem nature, as in the case of the Potato and Artichoke, *Dioscorea*, and epiphytic orchids, or of root nature, as in *Dahlia* and our common British orchids; and we not only look upon them as a means of carrying the plant through the resting season, but also as a means of vegetative reproduction. The bulb proper is a modified shoot, consisting of a disc-like stem at the base, bearing a more or less spherical mass of closely folded leaves above, which are swollen with reserves.

Now, we see that such plants possess these special means of carrying them through a dry season without injury in their native homes, and without that rest, under cultivation they do not tend to make good growth or to flower satisfactorily; and on the other hand, if we give them a too severe period of rest, the tubers or bulbs lose a good deal of their substance, and are consequently weakened. In some case the roots are more or less active during the resting season, and of course these should

not be too severely dried in the soil, or left for any length of time before being potted when imported.

If we study their structure, we can see that they do not all possess the same amount of substance, and that they do not all grow under the same conditions in Nature, so we must use our judgment as to what is best for them, and if general treatment is not suitable, we must classify them a little, and rest each group accordingly. Most of our bulbous plants flower after their period of rest has come to an end, and in most cases this should be a reminder that it is time to commence giving them water, to be gradually increased as the foliage appears, that as much strength as possible may be got into the leaves and bulbs. Water is to be gradually diminished as the growing season comes to an end, and ventilation and light increased, until the foliage has died away in some cases, and in others (which do not lose their foliage) to a point where common-sense tells us by their appearance we have gone far enough in the drying off process.

In these few observations on the growing season, I have perhaps strayed from the title of my subject, but this I found necessary in order to point out the importance of gradually preparing our plants for the rest which is so necessary to their welfare. The temperature of the surroundings of bulbous plants when at rest is important. Those tender ones which rest during our summer will not take any harm from sun heat providing they have plenty of ventilation, but most of them rest during our winter, and have to be stored away in sheds or under the stages of our plant houses (if we are not fortunate enough to have a place specially for them). Under these conditions, care should be taken that they are not placed too close to the hot-water pipes. I know there are exceptions, where they require a very severe drying before they will flower, but the majority will rest well in a temperature of 55deg Fahr. if they be tropical ones, or 15deg lower for those which make their growth in a cool house, providing they are kept quite dry.

We have to remember that the conditions of pot culture are somewhat different to the natural conditions. The small amount of soil contained in a pot soon becomes dried through, and if they are stored in too high a temperature the cultivator has to water them to keep them from shrivelling too much, and then growth will commence prematurely, and probably no flower is the result. These remarks are chiefly directed to such plants as *Crinum*, *Hæmanthus*, *Arisæmas*, *Achimenes*, and *Begonias*, and *Gloriosas*, and the *Zingiberaceæ*. Such bulbous plants as the *Ixias*, *Freesias*, *Lachenalias*, and *Nerines*, which rest during our summer, should be gradually dried off after flowering, and ultimately placed in a cold frame where they get full benefit from sunshine and air, and protection from heavy rains. Many of the tender bulbs and tubers start into growth at a time suitable to our convenience or requirements if we want them earlier than usual, but in a collection we find there are some which we cannot prevent from starting into growth after a certain period, even though we keep them in a cool place and quite dry. I have noticed this with many *Arisæmas*, *Hæmanthus*, and such tubers as the *Dioscorea*, and it seems strange that, although they are still kept under the conditions in which they rested so well, there is some influence at work over which we have no control. This influence is either hereditary, or some chemical change takes place in the food stored up in the leaves or tubers, and renders it necessary that it should be used up in the production of new growth at once.

In early spring we have to be careful not to overlook those plants which have commenced growth on their own account, and I have found it desirable to assist them with a little water and give them plenty of light, or the constitution of the plant will become weakened. There are many bulbous plants which do well out of doors, and rest through our winters with slight protection, and others which are usually grown in the borders, and of course our British bulbous plants, which do not require any special attention during the resting season. The necessity of good drainage for some of these bulbous plants out of doors is perhaps a condition which points more to the resting season, because during the growing season many of them require abundance of water. *Iris tingitana* is one of those which seldom flower except it has had a good long season of rest by being kept quite dry, but requires plenty of water when making its growth.

A good many ferns possess fleshy rhizomes, especially the *Polypodiums* and *Davallias*, but only in a few cases, according to my experience, do they require a dry period of rest. These are such plants as *Davallia immersa*, *D. canariensis*, and *D. chærophylla*, which lose their foliage naturally before water is withheld, and should then be kept quite dry for a couple of months, after which they will start into growth of their own accord. The great majority of ferns rest by the lowering of temperature and the shortening of the amount of sunlight, and should have sufficient water at the roots to keep the foliage healthy.—E. J. ALLARD, Cambridge Botanic Gardens.

(To be concluded.)

Repopulation of Rural Districts.

When the British nation actively bestirs itself in any cause, its citizens are at once inspired by hope and trust in the success of that cause. During the passing years the public interest has largely been engaged in the discussion and consideration of the problem of rural repopulation, and one of the largest practical movements, having decentralisation as its object, is witnessed in the formation of the Garden City Association. "A work begun is half done," and it is not too much to hope that a widespread united effort by various responsible governing and other bodies will result in the healthy regeneration and steady development of rural activities and country life.

On Tuesday evening, April 5, in Dowell's Rooms, George Street, Edinburgh, Mr. Wm. Williamson, of Logie Green Nursery, read a paper entitled "Hardy Fruit Culture, and its Bearing on the Repopulation of the Rural Districts, or the Ideal of Rural Economy." After describing the various causes which led to the depopulation of the country during the last half century, and the state of matters at present existing in our large towns and cities in consequence, the lecturer dealt with the means by which the people would be attracted again to the land and induced to remain upon it. Small farms or holdings on the old lines would be no inducement, because these cannot now be so profitably managed as those of larger area, and the solution of the question rested, he thought, on the principle of securing the commodities of greatest value the land can produce, and for which there is a demand. These are fruit and dairy and poultry produce, of which we import annually to the value of £43,000,000, according to the Board of Trade returns. The production of these commodities conjointly would be most economically conducted on small holdings with a minimum of 30 acres, one-third in fruit, and two-thirds in farm crops, the livestock consisting of one horse, four cows, and 100 head of poultry. A few of such holdings around our half deserted villages, where the soil is good, would, by providing labour for numerous families, old and young, revive rural life and interest in country affairs. The income and numbers employed between the two methods of culture—agriculture and mixed farming—was then compared, showing a difference in both cases of about 300 per cent.

After giving a few practical instructions on the management of the dairy and poultry to ensure success, hardy fruit culture was then considered, and chiefly the culinary Apple, which in Scotland has been sadly neglected, giving colour to the general idea of the impossibility of growing it profitably so far north. It was asserted, however, that by a proper selection of varieties and rational cultivation, better Apples for culinary use could be grown north of the Tweed than in any foreign country. A few of the varieties suitable for planting and training as dwarf bushes, pyramids, or, in the case of exposed positions, espaliers, were named, such as Rivers' Early, Lord Grosvenor, Stirling Castle, Warner's King, Prince Albert, and Newton Wonder, providing a succession from September till May. In order to ensure yearly crops of large fruit, attention was specially directed to surface feeding, cleanliness of the foliage, and proper thinning of the fruit. Unsatisfactory fruit and crops frequently resulted from neglect of the latter operation, but which is usually attributed to uncongenial conditions of weather at the time of setting. It was contended that fruit buds well matured and perfect at the time of flowering withstood a degree of cold which destroyed the blossom on trees of the same variety overcropped the previous year.

Small fruits were next dealt with, especially the Raspberry, which was characterised as one of the most profitable crops, producing four tons to the acre in several places in Scotland, a record rare on the Continent. After giving the value of average crops per acre of the different kinds, the method of collection and disposition of the various products was alluded to. The association of small producers in the different districts for mutual help and accommodation was considered essential for the despatch in quantity of the goods to the best market.

Undoubtedly one of the most interesting recent addresses on and practical discussions of the vexed question of gravitation of rural life to the cities and consequent handicapping of the agricultural interest in this country, was given by Mr. T. W. Sanders, F.L.S., at the conclusion of the monthly dinner of the Horticultural Club at the Hotel Windsor on Tuesday, the 19th instant, and contributed to by many of the members and guests present. Mr. Sanders attributed this undoubted evil to the nature of the education imparted to the rising generation and to the unattractive character of the rural surroundings which would later form their environment as agricultural labourers or workers in local associated industries, such as basket-making, smithwork, &c. He consequently advocated reform in both directions, the children being brought up with a better knowledge of horticultural and agricultural pursuits, imparting a

greater tendency to follow them, and cottages being erected of a more up-to-date class for their accommodation as adults, while coincidentally the smaller towns and villages should be more amply provided with institutes, to supply at once instruction and recreation for leisure time.

The chief reform, however, Mr. Sanders considered to be the wider extension of what he termed "intensive culture"—that is to say, the culture of market produce on properly guided lines, which produce should, moreover, not entirely gravitate, as it does at present, to the large cities, producing gluts which lead to loss instead of profit, while for lack of proper grading and packing the grower furthermore suffered, owing to the often unmarketable, because unrepresentable, character of his consignments. The profitable culture of cereal crops Mr. Sanders looked upon as a thing of the past in this country, and hence it was desirable to substitute for it the intensive culture he advocated for the benefit of local markets.

Mr. Sanders having made some remarks on the benefit of clerical guidance both in England and Ireland, and also the absence of such where it might be beneficial, the Rev. Mr.



Iris Haynei.

A beautiful new Cushion Iris.

Pemberton opened the discussion by indicating the great practical difficulty, as matters stand, of finding suitable rural opportunities of employment for boys educated in rural districts. In point of fact, to launch them on any likely career at all, he had found it necessary, in the course of a wide experience, to send them all up to town to find employment there. The great difficulty to be surmounted is the temporary nature of the labour required by the farmer. In the summer and at harvest time he can give full employment at good wages, but for a large part of the year he needs very few hands, and cannot afford, therefore, to make engagements for all the year through, as is done in city employments. This irregularity is one of the main adverse factors. Allusion was also made to the handicap arising from the triple burden of the owner of the land, the renter, and the incidence of taxation.

Mr. Dennis, a visitor and one of the members of the Tariff Commission, made an admirable speech, dealing with many of

the difficulties involved in Mr. Sanders' ideal, and laid special stress upon the burden of excessive railway rates in this country. He cited as an established instance the fact that Mediterranean produce was sent by rail to Paris, carted across Paris to the northern railways, shipped from Boulogne to this country, and brought from the landing ports by rail and van to Covent Garden, all for the same rate as is charged for the same packages from Covent Garden to Brighton. How, he asked, under such circumstances, was it possible for the British grower to compete with the foreigner? Mr. Dennis differed entirely from Mr. Sanders as to cereal culture being played out in this country, stating that owing to the immense advance of knowledge in the way of soil treatment, and the great improvement in the cereals themselves by selection, the British farmer was able to raise far heavier crops to the acre than was done in any other country, and consequently, if this line were followed up, he was fully able to hold his own provided the railway and other hindrances were removed.

Mr. Chas. Pearson and others pointed out the curious unwillingness of the British growers to co-operate on continental lines, each man sending his own little lot independently to market, whether of fruit or dairy produce, at a necessarily high cost, instead of arranging with his neighbours and sending bulk quantities on infinitely more economical and business-like lines. The result of this lack of cohesion is that large quantities of Onions and similar things are sent over here on a profitable basis by Dutch and other growers, who combine on rational lines, and make good profits at our expense. Mr. Geo. Monro endorsed many of Mr. Dennis's remarks, and especially those relating to railway rates, supplementing them by his own experience, as to bad grading and packing which characterised so much of the produce sent to market, only to leave a loss.

Both the address and the points raised in discussion were felt to be of such practical importance that it is much to be regretted that a mere abstract should be all that is practicable as a permanent record. A hearty vote of thanks was followed by the announcement that at the next monthly dinner of the club, on May 17, Sir John Llewelyn, Bart., would address the members on "Himalayan Rhododendrons for English Gardens," a theme with which he is so well fitted to deal.

Something About Manures.

To what extent electrical energy is involved in plant production is as yet but little understood. Latterly the agencies of microscopic life in the soil have been found to have an importance that but a few years ago was not dreamed of. The substances required by these soil organisms are those which essentially compose fertile soils, perfect plants, and useful manures, viz., oxygen gas and carbonic acid gas of the air, water of air and soil, sand, clay, and humus (or decaying vegetable matter) of the soil, and the several forms of plant food which the productive soil is the source of—sulphates, phosphates, nitrates, and carbonates of potash, ammonia, lime, iron, and magnesia. Among the other requisite conditions are certain alternations of heat and cold, of light and darkness, of dryness and wetness, due porosity and compactness of soil.

Many gardeners who live on a fertile soil and under a genial sky, even in these days gather in their various crops with little thought or knowledge of these energies and substances. The sun, the rain, the soil, prepared for them in the beginning, have been the sufficient sources of everything needed for their different crops.

But most of our intelligent readers find that what in the beginning answered well enough for them or for their fore-runners has become insufficient now, and they are compelled to make inquiry: What is the reason that crops are poor, and what can be done to the soil to restore and increase its productiveness?

The artificial fertiliser commonly supplies to the crop several substances which are indispensable to its make-up, and which therefore are adapted to assist its growth, principally nitrogen, phosphoric acid, and potash. With these lime, magnesia, and sulphuric acid are frequently associated. The three substances first-named are those which, in general, are most rare in the soil: which, therefore, are most quickly exhausted, and most difficult and costly to restore.

When land is unfertile because it is deficient in one or more of the ingredients of artificial manures, then the use of the latter is the certain and proper remedy. But the artificial fertiliser does not in most cases fully restore what the crop removes, and as the soil, by a long series of cropping, has once been reduced to a comparative infertility, which the superphosphate or potash or nitrate has relieved, so it will in time, if cropped by their help alone, fail again, mainly because the humus matter so necessary in a garden soil, which the artificial manures have not supplied, has been exhausted.

The solar energies that develop our plants are furnished in the course of nature in such plenitude, as we well understand. We cannot increase the sunshine, either in its duration or intensity. We can, however, more or less neutralise and nullify its good offices by improper soil culture. The heat of the sun, without which the soil is incapable of affording a genial rooting-place to our plants, cannot find its way downward to give due warmth to the earth unless there is free circulation of water in the soil; nor can the abundant oxygen of the air, without which no part of any plant can grow or live, be supplied to the roots of our plants unless the soil has a proper porosity and openness of texture established and maintained in it by judicious cultivation and, it may be, by drainage or other amendment.

It is true enough that in many instances a few hundred pounds of superphosphate or bonemeal, nitrate of soda, or sulphate of ammonia, or a combination of them, has enabled some soils to yield better crops than could be got by a more costly application of farmyard manure. This is plainly because the yard manure alone could not supply enough of nitrogen or of phosphoric acid or of potash for the crop. It is also true that in many cases the commercial fertiliser which, for a few years, far outdid the yard manure, finally fails to perform the duty expected of it; and the stable manure must be had recourse to and gives satisfaction, save in respect of the trouble and difficulty of getting it. This, again, is because the stable manure supplied something which the commercial fertiliser could not.

That "something" in some cases is a substance or kind of matter—it may be lime—which, in the course of cropping is removed from the soil in larger quantity than the artificial manures supply, or potash, which is quite wanting in superphosphates; but in most cases it is a "condition," a "texture" of the soil, which is not easy to describe, but which in the dunged soil is recognised as a mellowness and moistness, so beneficial to garden crops, that is lacking in the soil to which dung has not been applied.

Many of the coarse, sandy loams, which with moderate dressings of decaying vegetable matter in shape of stable manure or seaweed, has the texture, feel, and look of good land, and yields good crops, but without a supply of humus soon becomes harsh and "worn out." A little of the spongy matter of rotting manure gives to soil a quality which enables the earth to serve as an efficient regulator of the heat and moisture that have, or should have, access to it.

Reference has been made to the fact that lime is supplied to the land in small quantity by superphosphates. It may be added that they furnish lime mostly as phosphate or sulphate. We know that when muriate of potash and sulphate of ammonia are given to growing crops, the potash and ammonia are appropriated by the plant, while the acids are left in the soil. Now, that these acids shall not accumulate in such quantity as to injure vegetation, it is essential that the soil contain some substance, itself harmless, which shall take up and neutralise the liberated acids. Quicklime is one of the best materials for this purpose, and on a soil where lime is naturally deficient the gardener should lose no opportunity to add moderate quantities of quicklime or pulverised chalk to those soils upon which he intends using sulphate of ammonia or muriate of potash.

Again, we know that the conversion of decaying vegetable matter—such as stable manure, leaf mould, garden refuse, &c.—into plant food requires the intervention of chemical agencies which shall transform their inert nitrogen into nitrates. The natural forces that do this work, and do it most cheaply and beneficially, are those of the microbes which the most powerful microscopes just enable us to see, organisms that feed upon these refuse matters in the soil. The nitrifying microbe, which changes inert nitrogen into nitrates, cannot perform its work in a soil where any considerable amount of free acid other than carbonic acid exists, but works well and multiplies in presence of a little carbonate of lime.

Space is wanting here to go further into this subject, and the present purpose is simply to illustrate the fact that the interests of those who buy, as well as of those who sell, artificial manures can be best promoted by a knowledge, well applied, of all the factors of plant production. The plant, like the man, to flourish, not only requires an abundant and varied bill of fare, but also a suitable lodging and the comforts of a well appointed home. The best economy of artificial manures is to be attained by intelligently investigating what special wants of the soil or crop their various grades are adapted to meet, and what further wants of soil or crop must be attended to in order to prevent that impoverishment of soil which otherwise sooner or later is likely to ensue. The experience of this has led many gardeners to the erroneous conclusion that artificial manures are "stimulants and not nourishment," and that they "exhaust the soil," whereas they merely aid the gardener to exhaust the soil by rapidly removing in the crops substances which the soil unaided can supply but slowly or insufficiently, and by impairing or destroying one or several of those conditions which are indispensable to plant production.—J. J. WILLIS, Harpenden.

Interior View of a Large Conservatory.

Notwithstanding progress in the knowledge of, and skill in, the cultivation of plants for decoration, the methods of arranging them to the best effect have not improved, we fear, upon that practised years ago. It always seems to us that the construction of conservatories leaves a very great deal to be desired. Gardeners do not sufficiently understand building construction, and builders do not sufficiently appreciate the requirements of gardening; and these combined influences limit the plans of buildings. But in private gardens, where large conservatories are erected, we frequently find huge side stages, and even a central stage, with four straight walks around, each with corners turning at an angle of 90deg. True enough, if the gardener is an artist, he can make a beautiful display in any house by the use of hanging and edging plants, and by the

The Vegetable Garden.

Potatoes.

In many parts of the country planting will, during last and the present week, be in full swing, and where large areas have to be planted there is a great deal to be said in favour of doing the work at any time during April, when the soil is in a thoroughly suitable condition; but if one could depend upon getting similarly good conditions during the first or second week in May, I should prefer to plant main crop varieties then, rather than earlier, because when the plants push through the soil they are less likely to be checked by cold winds. The only exception I would make to this preference for late planting is in the case



Interior View of Large Conservatory.

Showing how plants can be naturally and effectively arranged without stages.

proper disposition of his grouplets and individual subjects. Tasteful arrangement, we feel convinced, is not half studied. A clever man can make "old sticks"—as scraggy plants are sometimes called—can make these look well; whereas the incapable, untutored practitioner, in using the same plants, would make a hideous exhibition.

One great fault is overcrowding. Another fault is the ill-chosen association of colours and forms. As a rule, the average man loves to mix his colours to the utmost, whereas the true beauty lies either in harmonies or in agreeable contrasts of not more than three (preferably two) colours. It must also be affirmed that many plantsmen do not properly understand their plants, for have not all of us often seen plants that could have adorned some space in the open garden if given care and shelter, occupying valuable house room? This is no exaggeration: it is truth.

And so in the present illustration we seek to show that if the correct plants are chosen, and either planted out or grouped naturally without stages in large conservatories, a more satisfactory result may be attained than is possible where the conventional, orthodox means are adhered to.

of light, shallow soils; late planting, followed by a dry summer, is then not a success, but soils having such characteristics should be planted with early rather than late varieties.

Those who have stiff soils to deal with will find a little finely powdered lime scattered along the drills at planting time a great aid to the production of clean tubers. Many cultivators make a practice of scattering superphosphate, or fish guano, along the drills; but I have always found it far preferable to use such manures on the surface of the soil either before or immediately after planting, working it in thoroughly with the hoe or fork. How many tubers fail to start, or, after having started, get their roots burned, as a consequence of scattering artificial manure along Potato drills, will never be known; if it could be clearly ascertained, many would receive a rude shock.

Steamed bone-flour or bone-meal may, however, with safety be used in the drills. Good samples of the former are, however, so fine and dry that it is difficult to use it alone without waste during a day when the slightest wind prevails. An excellent way of getting over the difficulty is to mix the bone-flour with twice its bulk of light soil. It can then be used with ease and economy.—ONWARD.



Thalictrum anemoneoides

Having the beautifully graceful foliage of a *Thalictrum* (one might as well say of an *Adiantum*), and the starry white flowers of an *Anemone*, and growing less than 6in tall, this little spring flower is one of the finest we have for either pot culture in an alpine house or for a sheltered pocket on the rockery.

Hybrid *Wichuraiana* Rose *Hiawatha*.

This new seedling from *Crimson Rambler* displays considerable decorative value. The flowers are single, intense crimson, with white at the base of the petals, foliage dark glossy green. The plant is a good grower, and very floriferous. When seen at the recent Boston show the variety and others of like nature, gave much pleasure to the visitor, and were a great feature. A companion variety is *Minnehaha*, a seedling from *Wichuraiana*.

Planting Hardy Ferns.

For embellishing moist, rough places, the hardy varieties of British ferns are very useful. A position may be found where probably a good rockery can be formed, and this planted with both evergreen and deciduous species. *Scolopendriums*, *Blechnums*, *Polystichums*, *Polypodiums*, are suitable evergreen ferns, and *Lastreas*, *Athyriums*, *Cystopteris*, *Polypodium dryopteris*, and *Osmundas* are deciduous. Plenty of soil should be provided, consisting mainly of loam and leaf soil, and strong plants just starting new growth inserted. Use the syringe, and water freely in dry weather until new growth is starting freely.—S.

Strawberry *Louis Gauthier*.

Have any readers attempted to force this Strawberry? asks "A. P. H." in "The Garden." It has been recommended for this purpose. As to its value in the outdoor garden there can be no two opinions. It is a splendid cropper, and Mr. Bunyard says it resists hot weather well, and also gives a second crop of fruit in the autumn. It is hardy and a vigorous grower, so that those whose gardens are situated in an unfavourable neighbourhood, as in the vicinity of large towns, might grow this variety with every prospect of success. Not everyone cares for a white Strawberry, and this may, perhaps, account for the comparative neglect of *Louis Gauthier*. To say it is white, however, hardly conveys a correct idea of its colour, which may be more properly described as pale pink; the flesh is white, and the flavour very pleasant. If the public would only overcome a prejudice against the colour of this variety, I am sure, so far as other qualities are concerned, they would find nothing to complain of. But it seems to be with white Strawberries as with yellow Tomatoes, the public will have none of them.

A New *Smilax*.

The new Myrtle-leaved *Smilax medeloa*, or *Myrsiphyllum asparagoides myrtifolia*, is a plant that appeals to the gardener as one that may be of exceptional value. It will prove as valuable as *Asparagus Sprengeri*, and is quite as beautiful, though of an entirely different type. It is very much more delicate and graceful than the common *Smilax*, the leaves being much smaller—only about one-sixth the size—and the young tendrils being much more artistic than the stiff branches of the common *Smilax*, make it a more beautiful green for decorative purposes. The newcomer produces many more lateral shoots than the common *Smilax*, and on this account it is advisable to carry it up on several strings, thus making it a more profitable plant to grow, especially for the home. It is a stronger and more vigorous grower than the common *Smilax*, and its hardiness and durability are more remarkable, strings remaining fresh six to eight days after being cut, and eight to twelve days when placed in water. It will commend itself to every grower of cut flowers, as there is so little variety in good greens for cut flower work. This *Smilax* originated in Europe about six years ago, and has proved constant since. Thus far no seed has been obtained, propagation being effected by division of the bulbs only, which are produced very rapidly.

Hyacinths and Spring Flowers in London.

With reference to our note under this head on page 341, Messrs. Cutbush and Sons, of Highgate and Barnet, point out that they supplied bulbs for the London County Council parks, while Messrs. Carter and Co. supplied the Royal parks.

***Pæonia lutea*.**

Though this beautiful *Pæony* has been known for over twenty years, it is still very rare, and was only last season awarded a first class certificate by the Royal Horticultural Society. There is at present no signs of its becoming plentiful, for in the recent catalogue of M. Lemoine, of Nancy, it is quoted at 50 francs each. As this *Pæonia* promises to be of great value to the hybridist (observes a writer in a contemporary) from its bright yellow colour, it is more than probable that M. Lemoine will employ it largely in this way, and some striking hybrids may in time emanate from the noted establishment at Nancy.

***Chrysanthemum*, *Santa Claus*.**

The new white *Chrysanthemum*, *Santa Claus*, brought out last summer by David S. Beach, of Bridgeport, Conn., U.S.A., took well in its initial season, and it has all the earmarks of a stayer. Mr. Beach, who is quite proud of this acquisition, states that the habits of the plants are such as to make it very easy to grow. The foliage is dark green, plant dwarf, height not exceeding three feet, with a remarkably thick stem. The blooms do not begin to show until the last week in October. Mr. Beach named the variety *Santa Claus* because of its snow-white, bearded appearance.

***Ericas* for the Greenhouse.**

Ericas form a very valuable class of decorative plants for the greenhouse, and although the handsome specimens of many years ago are not now the general rule, it is doubtful whether less care and attention is paid to them despite the continual assertion that they are neglected. In the earlier decades of the nineteenth century the *Ericas*, but more especially the *Epacrids* (which, however, belong to a distinct natural order), were amongst the chief decorative plants available, the hosts of bulbous and other plants with which the public of to-day are delighted not having as yet been introduced or evolved. But certain *Ericas*, and among them those we illustrate on page 369, will ever be popular. Thousands of plants of *E. hyemalis* and *E. gracilis* are annually grown by certain market men in and around London, notably Mr. James Sweet, of Finchley; and these find a place erstwhile as decorative subjects in town dwellings or in the conservatories of private gardens. At the present time the beautiful yellow-flowered *E. Cavendishi* is seen in florists' shops; and another similar plant of notable value, but with pink flowers, is *E. coccinea magnifica*. These four species are well nigh indispensable.

The Florists' *Verbena*.

Though never at any time occupying a foremost or very exalted place in the florists' anthology, the modest *Verbena* has nevertheless been a subject toward which his love has inclined consistently during many decades, and of late years a revival appears to have set in in its favour. We may compare the beautiful variety *Miss Willmott*, which every florist now grows and sells, with the weedy-looking old favourites of 1840 and later, and note that certainly a great improvement has been made. The trusses are far larger, the individual flowers are better, and, though habit varies in the different strains that are obtainable, yet suitable characters are fixed in the best kinds. George Glenny observes that the *Verbena* was originally a windmill sort of flower. Its qualities ought to be as follows:—
1. The flower should be round, without indenture, and no notch or serrature. 2. The petals should be thick, flat, bright, and smooth. 3. The plant should be compact, the joints short and strong, and distinctly of a shrubby character; or a close ground keeper; or a climber. Those which partake of all are bad. 4. The truss of bloom should be compact and stand out from the foliage, the flowers touching each other, but not crowding. 5. The foliage should be short, broad, bright, and enough of it to hide the stalks. As the *Verbena* is simple to cultivate and raise from seeds or cuttings, the improvement and selection of sterling varieties ought to be pursued with greater application than seems to obtain.



Varieties of the Florists' Verbena.



The Apple Bud-mite.

Allow me to record my best thanks to the Editor of the *Journal of Horticulture* for the information given concerning the Apple shoot I recently forwarded to Mitre Court Chambers; and for the readiness with which it was submitted to scientific research. I am also greatly indebted to Mr. G. Abbey for the thoroughness he has displayed in investigating and illustrating the shoots, and the insects found in the diseased tissues and buds. Mr. Abbey is undoubtedly doing splendid work in connection with such matters, and deserves the gratitude of all interested in horticultural pursuits. I, too, sincerely hope that this attack of "Apple bud mite" is quite exceptional, and will be confined to the tree under notice, for I fully realise that a general attack on the trees of our orchards would be even more ruinous than the Black Currant mite has proved. All the shoots on the affected tree have been removed and burned, and every encouragement will be given to secure clean growth. Should another attack be noticed, the tree will be destroyed.—H. D.

Gardeners and their Duties.

I hasten to comfort "R. C. S." (page 342) by assuring him that I have had little trouble from gardeners, young or old; certainly with not more than six men during fourteen years' work. This extreme case was cited to comfort other men, who might meet such treatment. I would apologise at once were the fault with me. The gardener already mentioned distinctly stated to a member of the class that his objection to me was not personal at all. He had treated my assistant in the same way the previous year, yet my assistant was a favourite and good teacher, who left much good work behind in the village. I heartily agree with "R. C. S." about diplomacy. I try it, and find it valuable. My father was taught (and he taught me) that "a little oil, Joe, keeps rusty hinges from breaking." Thus, sir, there were no "particulars" about my visit. I thought of writing a "humble" letter to the good man (he was a good gardener) after the first week, but people said: "Oh, don't trouble about him; we know how it is." I thoroughly agree with all that "R. C. S." wrote, and thank him; I will try to profit by it.—X.

Birmingham Councillors as Gardening Experts.

The following is from the "Birmingham Evening Dispatch":—Who is the city councillor—or is it an alderman?—who knows not the difference between a Laburnum and an Acacia? Councillor William Davis, himself a member of the Baths and Parks Committee, is responsible for the assertion that there is actually one member of that committee who has confessed to ignorance on the subject. Now Councillor Davis is a gardening enthusiast, and president of the Birmingham and District Amateur Gardeners' Association, and he is probably surprised to find that there is anybody so ignorant of the elements of botany—or shall we call it woodcraft? The point is, what amount of knowledge of trees and plants should be possessed by a city father to qualify him for a seat on the Baths and Parks Committee? As one civic legislator pointed out, expert knowledge is not really needed when a committee is guided by a competent gardener in all that appertains to the proper upkeep of the city parks. Fancy the committeemen having to pass an elementary examination in the science of botany! But the question opens up the possibilities suggested in a point which has often been urged by the City Association—that the council committees should be so constituted as to include as far as possible members with expert knowledge on various subjects. An accountant was obviously qualified for a place on the Finance Committee, a doctor for a seat on the Health Committee, a builder or contractor for election on the Public Works Committee or the Housing Committee, and so forth. In the same way, it is suggested, the amateur gardeners of the council should be elected on to the Parks Committee, for they might be supposed to know something of the business in hand. But this particular committee have most to do with musical arrangements and summer-night band-concerts than any other body on the council, and it might equally be argued that the amateur musicians of the council should share with the amateur gardeners and the amateur swimmers the privileges of controlling the baths and parks of Birmingham. The question raised by the Laburnum and Acacia has many sides!

Potatoes and the Potato Boom.

I must certainly compliment "T. A. W." on the improved style of his latest contribution to this subject, page 342. His primary onslaught appears to have been more warmly repelled than he anticipated; but if he is fond of dealing blows at others he must be prepared to receive some in return. I am not at all surprised at the fresh injunction "T. A. W." advances about "Northern Star," as I have heard as many conflicting opinions about that variety as I have of the merits of popular politicians; but I have also seen enough to justify my high opinion of the Star. "T. A. W." next includes me among "those clever people" who run away with the idea that the Star is the first of a new disease-resisting strain; and then I am given a wonderful piece of information, viz., that Magnum Bonum had a great reputation. Well, I am certainly not clever enough to have grown Potatoes for forty years without having grown over and over again that generous variety. It certainly was at one time a fairly tough disease-resister; but we have had far too few new varieties with similar characteristics during recent years, hence the value of the strains which are being boomed to-day.

"T. A. W." has certainly not strengthened his position by his additional remarks about Sutton's Discovery, for if a variety produces both kidneys and rounds freely on the same root, it is decidedly petty criticism to say that anyone is wrong for calling it a round, especially having regard to the fact that the classification of Potatoes is admitted on all sides to be in a hopeless muddle. Surely it is not necessary for "T. A. W." to advise me to go deeply into the subject of the boom, for I have spent a good deal of thought and time in the consideration of such matters, and my opportunities in this respect make it quite unnecessary for me to rely upon a "Potato farmer's opinion." Neither am I ignorant of the trade, or what some of the trade papers say upon the matter, but I know enough of trade to understand the subtle meaning of the somewhat hackneyed term, "A case of sour grapes."

The unscrupulous traders who are ready to push anything soon find their level, but those who get a good thing and then push it for all they are worth prosper amazingly; but even they are sometimes mistaken. And so it will ever be; enterprise and risk go hand in hand, and neither nations nor individuals can forge ahead without the former.—HORTICULTURAL INSTRUCTOR.

The Gardeners' Royal Benevolent Institution.

Readers of the *Journal* are doubtless already aware that Mr. Harry J. Veitch, for the last fifteen years treasurer of the Gardeners' Royal Benevolent Institution, will, at the request of the committee, occupy the chair at the Festival Dinner in aid of the funds, at the Hotel Metropole on June 28 next. No one probably has done so much for the benefit of necessitous gardeners and the widows of such as has Mr. Veitch, who has given unstintingly both of his time and money to assist the good cause, and the undersigned members of the parent committee feel that the present is an excellent opportunity for the gardeners of Great Britain and Ireland, as well as of all interested in gardening, to show their appreciation of what Mr. Veitch has done and is doing, by assisting to make this a record year in the financial annals of the Institution. Will they kindly assist us to do this?

The Institution is supporting 207 pensioners—121 men at £20, and 86 widows at £16 per annum respectively, at an annual cost of £3,796. To meet this sum, the only guaranteed income is about £860, leaving the remainder to be raised by voluntary contributions, subscriptions, and donations. This is a great responsibility, and we ask our fellow gardeners throughout the British Isles to help to lighten this heavy burden. Fifteen pensioners were placed on the funds at last election, leaving 38 unsuccessful candidates—several quite blind—on the list awaiting aid. The number of old and necessitous gardeners and their widows applying for assistance continues to increase, and without more generous support from gardeners, for whose benefit, and that of their widows, the charity exists, there is nothing for the committee to do but turn a deaf ear to the appeals that come before them. Votes are given for every guinea subscribed or collected, and it is possible for a gardener, by subscribing for a few years, to be entitled to as many votes as will secure his election—in case of need—without outside help.

The secretary of the Institution (Mr. G. J. Ingram), 175, Victoria Street, Westminster, will gladly furnish collecting cards and any further information anyone may desire to have. Most heartily commending our appeal to the very favourable consideration of all readers, and hoping to receive support, We are, yours faithfully, H. Barnes, Peter Blair, William Crump, W. Denning, Jas. Douglas, Mr. Gleeson, Jas. Hudson, John Jennings, J. McIndoe, A. MacKellar, G. Norman, S. Osborn, Owen Thomas, Bailey Wadds, Geo. Wythes (all of whom are members of the parent committee).

Societies.

R.H.S., Drill Hall, April 19th.

The following plants received awards, but were not described in last week's issue:—

Ribes King Edward VII. (Cannell and Sons).—The flowers are much larger than those of *R. sanguineum*, with deeper colour—i.e., rich rosy-crimson.

Odontoglossum crispum Venus (Mr. de Barri Crawshay).—A very fine form of the typical *O. crispum*, flowers white, tinged slightly with purple. A.M.

R.H.S. Scientific Committee, April 19th.

Present: Dr. M. T. Masters, F.R.S. (in the chair); Messrs. Gordon, Baker, Bowles, Chittenden, Saunders, Lynch, Prof. Boulger, Dr. M. C. Cooke; Revs. W. Wilks and G. Henslow (Hon. Sec.).

Pear Tree and Scale Insect.—Mr. Saunders reported as follows on specimen received from Mr. Ward, Bostoe, Falmouth:—"The insect on the spur of the Pear tree is one of the scale insects 'the mussel scale' (*Mytilaspis pomorum*), a very common pest on Apple trees. They may be got rid of by painting the infested parts with 8 ozs. of softsoap dissolved in a gallon of water, rubbed well into any inequalities of the bark. Do not only paint just the parts where the insects are, but for some distance up and down the stem or shoot, for these insects when young are active and crawl freely about the trees, they are then so small and inconspicuous that they may readily be overlooked."

Pear Scab.—Dr. Cooke replied to inquiries on the two following subjects: "One of the many forms of Pear scab, *Fusicladium pyrinum*, is now attacking young Pear shoots in some localities, forming black patches, but at present without any production of the mould. This is so well known on Pear and Apple, both on foliage and fruit, that it needs no description. Freely spraying with a solution of sulphate of iron should not be omitted at this season of the year."

American Violet disease.—"The American Violet disease, culminating in *Alternaria*, which has been fully described in R.H.S. Journal (vol. xxvii., 1902, p. 27, pl. ii., fig. 25), is again appearing in several localities, and is a most dangerous and destructive parasite. At present we have found no conidia on the spots, so that the destruction of the diseased plants will assist in checking its dissemination."

Biological analogy.—Dr. Cooke read the following interesting note on diseases—"I venture to call the attention of the committee to a remarkable instance of what I have termed 'biological analogy.' The Board of Agriculture, in a circular recently issued, states that a contagious disease affecting horses called epizootic lymphangitis has made its appearance in this country. After describing its principal features, it goes on to say that 'an organism is the cause of the malady, and it is easily transferred from the wound of a diseased horse to a wound on another horse not affected. The most common means of such transfer is by the agency of sponges, rubbers, brushes, &c.' This is precisely analogous to what takes place with the wound parasites of trees of fungoid origin, and it is interesting to observe and watch such cases, since the treatment which succeeds in one case may be equally successful in the other. It may be added as suggestive that in the case of diphtheria in the human subject, treatment with sulphur has proved eminently successful; in like manner as the same remedy is applied to the Vine oidium and the Rose mildew, both of which in habit bear a resemblance to diphtheria." A vote of thanks was given to Dr. Cooke for the above communications.

Cabbage leaf with funnel-shaped exerescence.—Mr. Holmes sent an example of this not uncommon phenomenon. It is an outgrowth analogous to those on "crested" corollas; and is comparable with ovules when metamorphosed into foliaceous appendages.

Wood Sorrel with rose-coloured flowers.—He also sent a plant of *Oxalis Acetosella* "growing amongst the ordinary form with Wood Anemones, Dog's Mercury, &c., in a wood. The Wood Anemones were also frequently pink, especially on the outside. The soil is greensand, and containing, I believe, both iron and magnesia."

Rhododendrons.—"Glory of Penjerrick," a very handsome flower shown by Mr. Rob. Fox; a miscellaneous collection of Sikkim species, by Mr. Graham Vivian; and both rose and white trusses from the same tree of *R. Falconeri*, by Mr. J. M. Rogers, of Riverhill, Sevenoaks. He observes:—"Of late years the buds have been getting less and less white." Mr. Wilks remarked that it was not at all uncommon with this species to produce very differently coloured flowers. Dr. Masters observed that *R. ciliatum* was originally figured by Sir J. D. Hooker, pink; but cultivated plants of to-day always bore white flowers.

Cedars at Chelsea.—Dr. Masters showed an old lithograph, but the date was not given, of the original Cedars in the Chelsea Garden. They were planted in 1688, when 3 feet high; the last has now died.

Injury to Roses by the Use of the French Secateurs.—Mr. Hudson showed a number of shoots pruned with this instrument, and all had died in consequence. It appears that it makes a horizontal cut, and

the pith shrinking, water fills the cup, decays the pith, and the adjacent shoot is killed. Mr. Hudson adds that he has abandoned its use, and returned to the knife, making a slanting section. Mr. Baker added that it was most important that the instrument used, whatever it may be, should be perfectly sharp, as blunt ones injured the stems. Mr. Lynch also added that he had abandoned the use of the secateur at Cambridge.

Feltham, Bedfont, and Hanworth Horticultural.

The first annual spring show of the above society was held on April 13, in the Town Hall, Feltham. In October last the society presented 900 pots of bulbs to the school children in the respective parishes. Each child was given a pot of Hyacinths, Tulips, and Narcissi, to be grown by them at their homes, with the object of exhibiting them at this spring show. Prizes to the value of 55s. were distributed to the children for the best pots of bulbs. Keen competition was shown, and some of the exhibits were very creditable to the children. Non-competitive groups were staged by the following:—E. Whiteaway, Esq., Feltham Lodge, Feltham (gardener, Mr. J. Tait), with orchids and *Schizanthus Wisetonensis*, which obtained a full share of admiration.

A very nice exhibit was sent by Neville Reid, Esq., The Oaks, Hanworth (gardener, Mr. W. R. Hinton) consisting of *Azalea indica Vervaeiana*, *Cineraria stellata*, *Amaryllis*, *Narcissi*, and a very fine strain of the Hybrid Blue *Cineraria*. A. G. Bonley, Esq., Minora, Feltham, exhibited a very interesting group of greenhouse plants, made up of *Camellia*, *Acacia armata*, *Azalea indica* and *mollis*, *Primula verticillata*, and *Freesias*. Mr. Honey, gardener at the Feltham Industrial Schools, had a large group, consisting principally of *Arum Lilies*—very large specimens, well grown—also Hyacinths, *Narcissi*, and *Geraniums* in pots. A very neat group of ferns and palms was sent by Mrs. Ashwell, Bridge House, Feltham (Mr. Gilham, gardener), which included a very large and well-grown specimen plant of *Aspidistra*.

Messrs. T. S. Ware (1902), Ltd., Ware's Nurseries, Feltham, exhibited three large groups of bulbs, hardy flowering plants, and Roses. The group of bulbs consisted principally of choice named Hyacinths and *Narcissi* in pots, the latter exceptionally large and well-grown. Among the varieties shown were *N. stella superba*, *N. Lulworth Beauty*, *N. Madame Plomp*, *N. Victoria*, *N. poeticus Horace*, and *N. Incomp. Red Star*. The group of hardy flowering plants occupied a large space in the centre of the hall, and was the centre of much attraction. Of hardy *Clematis* the varieties most noticeable were *Nellie Moser*, *Beauty of Worcester*, *Mrs. George Jackman*, *Mrs. Cholmondeley*, and *Venus Victrix*, a grand double. A stage was occupied with Messrs. Ware's Roses, exhibited in pots. At this season of the year they naturally attracted a great deal of admiration. A silver cup presented by Mr. Harry Fear, Feltham, to the society for competition in the cottagers' section at their third annual summer show, which will be held on July 20th, was on view, and caused much admiration. During the evening Mrs. W. L. Ainslie, Hanworth Park, kindly presented the prizes to the children.

Liverpool Horticultural Association, April 13.

The annual spring show was held in St. George's Hall on April 13. The groups of miscellaneous foliage and flowering plants were admirable, Mr. J. Bracegirdle, gardener to W. H. Watts, Esq., Elm Hall, Wavertree, gaining the victory. Mr. Cromwell, gardener to T. Sutton Timmis, Esq., Cleveley, Allerton, followed. Table decorations were greatly improved, Mr. J. Stoney, gardener to F. H. Gossage, Esq., Camp Hill, Woolton, scoring with charming *W. A. Richardson* Roses, arranged in low bowls. Mr. J. Williams, gardener to C. J. Proctor, Esq., Noctorum, Cheshire, followed with a graceful lot of *Narcissi*, and Mr. J. Nixon, gardener to O. Robinson, Esq., Alderley Edge, with a singular arrangement of *Anthuriums* chiefly. The greenhouse *Azaleas* were superbly grown, Mr. T. Hitchman winning with three in 8in pots, also for three forced hardy plants, a good *Hydrangea* and *Azalea mollis* as the best; for six excellent *Cyclamens*, two trained *Mignonettes*, and for *Azalea mollis*. Orchids have been heavier, but never more profusely in flower. Mr. E. Bache, gr. to A. H. Bencke, Esq., Oliva, West Derby, won with three and one, the former containing charming plants of *Dendrobium nobile nobiliss*, *Wallichianum*, and *Ainsworthii*, and the latter *Dendrobium Ainsworthii*; Mr. Bracegirdle a fine second. Mr. Stoney had as the best, two *Oncidium* unnamed, and a fine piece of *Odontoglossum crispum*. The *Amaryllis* from Mr. Finch, gardener to J. Smith, Esq., Newstead, Wavertree, were handsome, and the pots of *Lily* of the Valley from Mr. Carling, gardener to Mrs. Cope, Dove Park, Woolton, extra fine. Hyacinths and Tulips made a great feature, the winner for twelve of the former being Mr. Osborne. Tulips, especially the twelve and six classes (which were won by Mr. Holford, gardener to E. Whitley, Esq., Sefton

Park), were beautifully flowered; the prominent varieties were Rose Luisante, white Joost Van Vondel, White Pottebakker, Duchess of Parma, T. Moore, Vermilion Brilliant, and Mons. Tresor. Mr. J. Williams, in class for doubles, had the Tournesol family, and Mr. H. Osborne, gardener to Mrs. Woodsend, grand Narcissi. For plants in 6in pots Mrs. Stevenson was successful.

Messrs. R. P. Ker and Sons, Aigburth, had as usual their superb Amaryllis (gold medal). Silver medals went to Messrs. T. Davies and Co., Wavertree, for Anemones, Lilies, Deutzias, Cinerarias, &c. Messrs. Dicksons, Ltd., Chester, had a very fine array of Narcissi, handsomely staged and very attractive. Messrs. Hogg and Robertson had Tulips and Narcissi, &c. Messrs. J. Cowan and Co., Gateacre, had orchids of all the well known varieties, abundantly flowered and most interesting. Messrs. Hewitt and Co., of Solihull, Warwickshire, had a quiet little corner filled with lovely Carnations.

Dublin Spring Show, April 15 and 16.

The council of the Royal Horticultural Society of Ireland some time back conceived the idea of bestirring the latent love of our own particular public, and its lethargic purse as well, with a two days' floral fête, which project was happily carried out in "elegant" weather. The spacious halls of the Royal University were well adapted to the various sections and addenda comprising what was termed "La Floralie," which went beyond the strictly legitimate exhibition by the introduction of concerts, children's dances, tea gardens, and sundry side shows. But the spring floral display, which in Dublin, unfortunately, seems to require this side propping, was, par excellence, probably the finest ever held by the venerable society during its long life of threescore years and ten.

The Daffodil itself, in all its varieties and phases of culture, formed a remarkable exposition of the popular flower. First must be mentioned four stalls representing the four Irish provinces, presided over by Lady Ardilaun, the Countess of Leitrim, Lady Castlerosse, and Lady Ashtown, where these ladies, with a staff of assistants, sold plants and cut flowers, contributed by generous helpers. In the flower show section proper competition was keen, and exhibits of high class, represented by fine ferns, grand Cinerarias, good pot Roses, magnificent Mignonette, Spiræas, Azaleas, and others of that ilk, which, having mentioned, we will go for the Lilies of Lent.

"Holland in Ireland" was, of course, in strong force, and the strongest of the strong in this stand of Messrs. Hogg and Robertson was the new Narcissus, Sir Francis Drake, raised in Cornwall by Mr. Kendall. It is a glorious flower, something in the way of King Alfred, but more truly regal in size and substance. Miss Currey's great collection had striking examples of Lucifer, and (with apologies to Bryant and May) matchless in its way. It is a daring Daffodil. These, with the Sligo group of Sir J. Gore-Booth, showed what Ireland can do with the nodding Daffodil, and for this show it can, and did, do a great deal.

In the competing classes C. M. Doyne, Esq., of Gorey, Wexford, carried off the president's (Lord Ardilaun) cup for fifty varieties of Narcissi, as he did four other first prizes for other classes of Daffodils. Our great Irish Rose raisers, Alex. Dicksons, with seventeen gold medals to their record, put up stands of faultless blooms, over which visitors hung lovingly. This section of their comprehensive exhibit of spring flowers was a treat, and, if one dare say it, a palliative to the Daffodil fever which raged in the Royal University. However, "Holland in Ireland," as exemplified at Rush, Co. Dublin, is now an important factor in the economic industries of the "distressful" country, and its acres and acres of high quality bulbs are drawn upon from far and wide; whilst the Irish Dicksons, as is well known, is a name to conjure with in the Rose world, within, and far beyond, our own verdant shores.—K, Dublin.

Bristol Gardeners.

A meeting was held on April 14, when Mr. P. J. Worsley favoured the Bristol gardeners by giving them a lecture on "Daffodils," illustrated by several diagrams, kindly prepared by the Misses Worsley. A feature of the evening was the magnificent display of cut Daffodils, Mr. Worsley showing some beautiful blooms. Mr. C. H. Cave also brought a number of his valuable and beautiful seedlings, which were greatly admired. Collections were also sent from Messrs. Garaway and Co. and Messrs. Barr and Sons. Messrs. Garaway also staged some beautiful blooms of zonal Geraniums. The competition for the prizes kindly given by Mr. C. H. Cave proved very keen. Mr. Worsley and Mr. Cave kindly acted as judges, and gave awards as follows:—1st, Mr. W. A. F. Powell (gardener, Mr. Raikes); 2nd, Mr. F. C. J. Fisher (gardener, Mr. Shelton); and equal 3rd to Mr. J. Chetwood Aiken (gardener, Mr. Clarke), and Mr. A. Baker (gardener, Mr. Orchard), the class being for six varieties

of Daffodils. A certificate of merit was awarded to Mr. A. Baker (gardener, Mr. Orchard), for a collection of Primroses. The coveted special certificate was recommended for Mr. A. Shipley (gardener, Mr. Wakefield), for a most beautiful seedling Amaryllis.—H. K.

Birmingham Gardeners' Association.

A very instructive and comprehensive paper on "Pruning of Hardy Fruit Trees" was read before the members on April 11 by Mr. J. C. Tallack, head gardener to E. Miller Mundy, Esq., Shipley Hall, Derby. Mr. Walter Jones presided, and introduced Mr. Tallack as a well known cultivator of hardy fruits, also as a horticultural writer. His thoroughly practical remarks, more especially upon the extension system of pruning the Apple and Pear, were illustrated by examples of branches of only four or five years' growth, totalling eight or nine feet in length, and thickly furnished with fruit buds almost from base to top, and the successive leading shoots had never been shortened by the knife after the initial formation of the trees. The demonstration was altogether much appreciated by members, and it also gave rise to an interesting discussion, generally consonant with Mr. Tallack's opinions and practice. Responding to a hearty vote of appreciation, he cordially expressed his gratification of the attention to, and the discussion induced by, his essay.

Leeds Paxton.

The Leeds Paxton Society varied its customary weekly programme on Saturday, April 23rd, by a happy combination of music and flowers. The members took advantage of the privilege on this occasion of introducing musical and other friends to the meeting, and the result was a great musical treat. The floral display consisted of a magnificent collection of Narcissi and Tulips, kindly sent by Messrs. Barr and Sons, Messrs. Hogg and Robertson, and Mr. W. Baylor Hartland. It seems a pity that such a splendid display of these popular spring flowers should have been seen by only a comparatively small number of people, and it is to be hoped that it may eventually lead to the forming of a spring exhibition in Leeds.

Reading and District Gardeners.

The fortnightly meeting of this association was held in the clubroom, and was attended by upwards of 100 members. The subject for the evening was "Present-day Orchid Culture," and was introduced by Mr. W. Bound, Gatton Park Gardens. Without doubt many of the ideas put forward with regard to culture were entirely new to the majority of the growers, yet it added interest to the discussion which followed, and brought out many points which were of great benefit to those present. There were some excellent exhibits, consisting of a group of Cineraria stellata, containing many new and beautiful colours, by Mr. F. Lever, Hillside Gardens; three pots of Mignonette, the plants being of excellent growth, and bearing some extraordinary spikes, from Mr. J. A. Hall, Shiplake Court Gardens; a basket of seedling Polyanthuses, the plants carrying masses of bloom, from Mr. D. Harris, Mapledurham House Gardens; a brace of Sutton's Everyday Cucumber cut from pot plants, by Mr. F. W. Exler, East Thorpe Gardens; Alicante Grapes, from Mr. J. Crook, Forde Abbey Gardens; a splendid plant of Dendrobium nobile, from Mr. H. Wynn, Cressingham Gardens. The orchid was entered for the association's certificate of cultural merit, and the judges awarded the same. Five new members were elected.

Hull:—A Rock Garden.

A most interesting paper on a very important subject—the arrangement of a rock garden—was read before this society by Mr. Clarke, of York, on April 12. To summarise the speaker's remarks, the wrong way to make a rockery is to make a mound of soil and to dot some large stones on it; another extreme is to make a heap of piling rock on rock, and then endeavour to put soil in. Through such a construction wind will freely blow, with the most disastrous results. Where the space is large enough, a path should lead to the rock garden so as to come to it as a surprise. It needs to be isolated and well sheltered from winds, without excluding all sunshine. The chief essential in the rock-work is to get deep root room. A provision should be made for the accommodation of shade-loving plants. Arrange the pockets so as to prevent the soil being washed away by falling from rocks above. Firmness is another essential, and it should be possible to tread on any of the stones without displacing them. The soil suiting the majority of the plants would be a good loam, leaf soil and sand, using peat in those parts allotted to peat-loving plants, so as to get the best out of all subjects. A series of lantern slides were shown, Mr. Clarke describing the plants, their suitability for various positions, &c., the while.—W. R.

Chester Paxton.

The energies of the committee in the way of exhibitions have hitherto been mainly devoted to fruits and Chrysanthemums, although two spring exhibitions of a non-competitive character have been held. This year, however, a new departure was made by offering a number of medals and certificates for spring flowers, with the result that an excellent display was made in the Art Gallery of the Grosvenor Museum on Tuesday and Wednesday of last week. Daffodils played the most prominent part of the exhibition, and a group of the newest and best varieties, staged by Hugh Aldersey, Esq., of Aldersey Hall (per Mr. Chisholm) left little to be desired, and was rightly awarded the highest honour at the disposal of the judges, viz., a silver medal.

The president of the society, Major MacGillcuddy, Bache Hall (per Mr. E. Stubbs) staged a very effective group of flowering plants and Daffodils, which included some particularly bold specimens of *Narcissus Johnstoni* Queen of Spain, which

Messrs. Dicksons, Ltd., and Messrs. McHattie and Co., the former staging an excellent exhibit of Daffodils, and the latter a collection of newest Hyacinths. Mr. N. F. Barnes, Eaton Gardens, and Mr. G. P. Miln adjudicated, and their awards gave every satisfaction.

Royal Meteorological.

The monthly meeting of this society was held on Wednesday evening, 20th inst, at the Institution of Civil Engineers, Great George Street, Westminster, Capt. D. Wilson-Barker, F.R.S.E., president, in the chair. A paper by Mr. W. L. Dallas on "The Variation of the Population of India Compared with the Variation of Rainfall in the Decennium 1891-1901," was read. The author showed that during the four years 1891-1895, the rainfall was generally normal or heavy over nearly the whole country, and during the six years 1895-1901, the rainfall was greatly deficient. During the former, or "wet" period, the rainfall was deficient over Upper Burma and Madras, was nor-



Erica hyemalis (front and centre) and *E. gracilis*. (See page 364.)

were awarded a first class cultural certificate, and the exhibit as a whole a silver medal. The exhibit sent by Dr. Mules, The Old Parsonage, Gresford, N. Wales, was quite unique, and was also awarded a silver medal. The doctor's Daffodils are always particularly fine, and upon this occasion they proved to be no exception to the rule. His specimens of *Tulipa Greigi* were also remarkably fine, and were awarded a special cultural certificate. Mr. Robert Wakefield, The Gardens, Newton Hall (Miss Humberston) upheld his reputation as an exhibitor by a large and representative collection of hardy border flowers, which was awarded a large bronze medal. Lieutenant Townsend Currie, Christleton Hall (per Mr. John Weaver), contributed a large exhibit, consisting of Daffodils, hardy Primulas, Auriculas, and some fine specimens of Storrie's Albino Kale, awarded a large bronze medal.

Other noteworthy exhibits were made by Mrs. Tyrer, Plas Newton (per Mr. Ellams), whose *Cineraria stellata* were particularly well grown; T. Gibbons-Frost, Esq. (per Mr. Gilbert), with Hydrangeas, &c.; Mrs. Arthur Potts (per Mr. Franklin), with Auriculas, &c.; and last, but not least, the Countess Grosvenor (per Mr. England), who staged an effective group of Marguerite Carnations. Local nurserymen were represented by

mal over the remainder of Burma, Assam, Bengal, and the west coast of the peninsula, and was excessive elsewhere; while during the latter, or "dry" period, the rainfall was again deficient over Upper Burma, normal or excessive over the remainder of Burma, Assam, Bengal, the United Provinces, the North-west Frontier Province, and the South of Madras, and was deficient elsewhere, most so over Rajputana and neighbouring areas.

The general census of India on March 1, 1901, showed the total population to be 293,475,477, which, excluding the territories not included in the 1891 census, was an increase of only 1.3 per cent. The population had thus failed to increase according to the normal rate during the decade. Part of this failure was no doubt due to epidemics. The author, however, shows that there is an unmistakable relationship between the variations of the population and the variations of rainfall during the dry years. The area within which the most serious decrease of population occurred coincides almost exactly with the area of greatest deficiency of rainfall. A paper by Mr. J. B. Cohen on "The Cause of Autumn Mists" was also read, in which the author describes some experiments which he made on Coniston Lake some time ago.

Midland Daffodil, April 26th and 27th.

The sixth annual show, held on the above dates, was ushered in with fine weather, and was attended by a highly numerous attendance of visitors to inspect and admire the best exhibition yet held by the society, enhanced as it also was by the co-exhibition of the National Auricula Society (Midland section), whose show was held in the Palm house of the Botanical Gardens, Edgbaston, as space could not be found in the usual exhibition quarters of the Daffodils, &c.

The trade or honorary exhibits were very numerous, and immensely contributed to the splendid galaxy of spring floral beauty. A novel feature was the select collection of Cacti contributed by Mrs. Thompson, of Handsworth, and which afforded a striking contrast to the floral display.

COMPETITIVE CLASSES: GROUP A, CUT BLOOMS.—Class 1.—For a representative collection of Daffodils in fifty varieties, Mr. E. M. Crosfield, Little Acton, Wrexham, who was placed third in this class last year, won the blue ribbon on this occasion, with a superior assortment of blooms. The prize was an elegant silver Daffodil cup, of original design, value seven guineas, given by Messrs. Barr and Sons, together with the society's gold medal. The collection contained several fine examples, including such as Maid Marion, and Saladin, to both of which awards of merit were given, Weardale Perfection, Glory of Leiden, Waveren's Giant, Emperor, Horsfieldi, King Alfred, Madame Plomp, Lady Margaret Boscawen, and Madame de Graaff, in the large trumpet section, were also here. The second honours fell to Mr. W. Curtis, gardener to A. L. Leslie Melville, Esq., Branstons Hall, Lincoln; third, Messrs. Pope and Sons, King's Norton; and fourth to Mr. F. H. Walton, The Friary, Handsworth.

For a collection of twenty-five varieties, the first prize was accorded to Mr. H. B. Young, Methersingham, Lincoln; second, the Rev. J. Jacob, Whitchurch, Salop; and third to Mr. J. H. Hartell, Olton. In the class for a group of six varieties of Daffodil seedlings, all to be raised by the exhibitor, the first prize went to Mrs. R. O. Backhouse, Sutton Court, Hereford, who had some promising varieties; second to Miss Catherine Spurrell, Hanworth, Norwich; and the third to Messrs. M. Van Waveren and Sons, Holland. For a group of twelve varieties of seedlings that have not been in commerce four years, the first prize, silver bowl and gold medal, was awarded to Miss E. Willmott, Great Warley, first class certificates being awarded to Warley Scarlet, Great Warley, Count Visconti, Snowdrop, white Mulicus, and Moonstone; second to Messrs. Waveren and Sons, Holland.

For six varieties of Daffodil seedlings to be raised by exhibitor, Mrs. R. O. Backhouse, Miss Spurrell, and Messrs. Waveren won as in their order named. For twelve distinct varieties of true trumpet Daffodils, Mr. J. H. Hartell won first honours in a keen competition, with a collection of the leading well-known varieties; second, Mr. H. B. Young, Lincoln; third, Messrs. Pope and Sons; fourth, Mr. F. A. Walton; and fifth, Mr. James Douglas, Great Bookham. For six varieties, the Rev. T. Buncombe, Ruabon, was to the fore with fine samples; second, Mr. W. Curtis, gardener to A. S. Leslie Melville, Esq.; third, the Rev. J. Jacob; fourth, Mr. C. L. Branson, Colleshill Park, Colleshill; and fifth, Mr. W. L. Deedman, Edgbaston.

For six pots polyanthus Narcissi, Messrs. Cartwright, Deedman, and A. Cryer were the respective winners. Tulips formed a striking feature. For six pots, single varieties, Messrs. Cartwright, Cryer, and Deedman were the winners. Mr. A. Cryer was the only exhibitor of six pots of Lily of the Valley, and worthily won the first prize; also for six pots of *Lilium longiflorum*. Table decorations, bouquets, &c., materially contributed to the enhancement of the show.

In the class for twelve varieties of medio-coronata Daffodils, Mr. W. Curtis took the lead, with an assortment of the leading varieties; second, Mr. A. M. Wilson, Spilsby; and third, Mr. J. H. Hartell. For six varieties ditto the first prize fell to the Rev. T. Duncombe; second, Mr. C. L. Branson; third, the Rev. J. Jacob; and fourth, Mr. W. L. Deedman. For six varieties parvi-coronata first prize was accorded to Mr. H. B. Young, Lincoln; second, Mr. A. S. L. Melville; third, Mr. F. A. Walton. For six varieties of true poeticus, Mr. A. M. Wilson led; second, Mr. James Douglas; and third, Mr. H. B. Young. For six varieties of Daffodils (not to cost more than 3s. per doz) the first prize was awarded to the Rev. T. Buncombe, the only exhibitor.

For twelve varieties (with orange cups) Mr. F. A. Walton was the winner, and Mr. James Douglas second. For twelve varieties, not more than 10s. a dozen, Mr. R. C. Cartwright, King's Norton, took the lead; second, Mr. S. S. Jones; third, Mr. W. Brodie, Wyloe Green; and fourth, Mr. A. Cryer. For six varieties, Mr. J. Seany led with very good blooms; second, Mrs. Mustin, Edgbaston. Daffodils grown in pots were well exhibited.

HONORARY EXHIBITS.—A gold medal was awarded to Messrs. Felton, florists, Hanover Square, London, for a splendid collection of plants and cut flowers. Silver-gilt medals to Messrs.

Barr and Sons, Messrs. Dickson (Chester), Messrs. Gunn and Sons (Birmingham), Messrs. Hogg and Robertson (Dublin), Messrs. Pearson, and Messrs. Reamsbottom (Geashill, Ireland); a large silver medal to Mr. R. Sydenham; silver medals to Sir H. J. Gore, Messrs. B. Cant and Sons, Miss Currey, Messrs. Gilbert and Son; Messrs. Hewitt and Co; Messrs. Simpson and Son, and Mrs. Thompson.

Awards of merit were accorded to the Rev. G. H. Engleheart for seedling Narcissi, Goldeye, Fearless, Acme, and Epic.

Newport (Mon.) Gardeners'.

The usual meeting of the above association was held on April 13, when Mr. J. Wiggins read a very interesting paper on "The Culture of the Herbaceous Calceolaria." Mr. Wiggins, who is looked upon as the champion Calceolaria grower of this district, recommended that the seed be sown the first or second week in August in clean, well-drained pans, filled nearly to the rim with soil composed of loam, leaf soil, and sand, watering the pans half an hour or so before sowing the seed, which should not be covered with soil. Place the pans in a cool frame, covering them with a piece of glass, to be kept shaded until the seed germinates, when air and light can be given, but bright sunshine must be kept from them. When the seedlings are large enough, prick off into small pots, place again into cold frame. In November place them in 5in pots, using a compost as above, with a little well-rotted horse droppings. They can now be placed on a shelf near the glass in a cool greenhouse. In February they may be placed in 8in pots for flowering, using a compost of two parts loam, one part rotten horse droppings, one part leaf mould and wood ashes, adding a 7in potful of soot to a barrowload of soil, and a handful of artificial manure.

From now onwards they must be grown in a cool, shady, moist position, to be carefully watered, sometimes giving them a little weak liquid manure water. They must be kept free from green fly by frequent fumigations. In potting, do not pot too firm. As the flower stems advance they must be tied out in place, then, if all goes well, there will be such a display of flower that will gladden the heart of employer as well as of those who have had the care of the plants throughout. A good discussion followed, in which Messrs. Harris, Daniels, Woodward, Jones, Taylor, the chairman, and others took part. Mr. Wiggins was accorded a hearty vote of thanks for his able paper. Mr. J. Duff presided over a good attendance.

Resurrection Plants.

Three different plants are known under this name. *Mesembryanthemum Tripolium* is one of the most remarkable. When dry the seed capsules are tightly closed up, and when soaked in water the capsules will open out their curious valves. On being dried they will close, but will open again with moisture. This may be repeated several times without destroying the remarkable hygroscopic properties. The seed vessels or capsules of many other plants possess the same properties, and it is chiefly those which grow in countries or districts where they have long, dry seasons. The seeds which ripen during the early part of the dry season, remain on the ground for a considerable time, and are protected by the folding up of the capsules. When the rain comes these coverings open and allow the seed to escape during the time the ground is most suited for their germination. In addition to the species named above, there are several other *Mesembryanthemums* which possess the same properties.

Anastatica hierochuntica is another known as the Resurrection-plant. It is a curious little annual belonging to the Cruciferae. It is the only species belonging to the genus, and is widely disbursed over the Mediterranean regions from Syria to Algeria. The short stem is branched, the branches spreading, and the flowers are produced on these. When the seeds ripen the branches close up and all the leaves fall off, and later on the stem dries off at the base, and the little ball-like heads of seeds are dispersed by the wind, sometimes being blown into the sea. When this happens the branches unbend, the seed capsules split, and the seeds may be cast on shore to germinate. When rain comes on land the seeds are released in the same way to germinate while the ground is moist. This plant also possesses the hygroscopic properties, that is, the branches will open when wet and close again, to reopen again as frequently as they are exposed to the change. In addition to being called the Resurrection-plant, it is also known as the Rose of Jericho, and in Palestine it is known as Kaf, Maryan or Mary's Flower, there being a tradition that it expanded at the birth of Christ. The third known as the Resurrection-plant is *Selaginella lepidophylla*, a Club-moss, which, after being dried up, will again assume its natural appearance. On this account it is often sold as a vegetable curiosity.

Entomological Notes.

The Pine Sawfly, *Lophyrus pini* (Linn.).

Pine trees, especially the Scots Pine and black Austrian Pine, are frequently seriously damaged by the larvæ of sawflies. The chief culprit is the Pine sawfly (*Lophyrus pini*), but several other species do considerable harm now and again. The Pine sawfly prefers trees with a sunny aspect, and hence it will be noticed in greatest abundance at the borders of plantations and around clearings. Trees from ten to thirty years old are most subject to the ravages of this pest, but younger and older trees may sometimes be seen severely attacked. The damage they do is soon noticeable, owing to the larvæ feeding in companies; these colonies number sometimes as many as a hundred individuals, but as the larvæ grow they disperse. The damage is chiefly caused by the larvæ eating the needles; this they do in two ways, first by eating notches out of the sides of the needles, and later by eating the whole needles down to their base. There are two broods during the year, the first of which devour the one-year-old needles and the second those of the current year. There are records of the larvæ eating the young bark. This forest pest often attacks large areas at the same time. In one instance 2,000 acres were invaded. They often disappear suddenly; this is due to their being so susceptible to climatic changes, cold and wet weather being very prejudicial to them.

The parent or adult sawfly is nearly three-fifths of an inch across the wings in the male (Fig. 1), and about four-fifths in the female (Fig. 2). The male is black, with the apex of the abdomen reddish, with white spots on the under side of the first segment; in the female the body is dull yellow, with three dark areas on the thorax and the middle of the abdomen black; the legs are yellow, and the wings have dusky borders, which are, however, not so noticeable in the fore wings of the male. The sexes can most easily be distinguished by the male having doubly pectinate antennæ, those of the female being bristle-like.

The adults usually appear early in May, and again as a second brood in August. The female, which seldom flies owing to her heavy build, lays her eggs in the needles, in slits cut by the saw-like processes common to the sawflies. As many as from ten to twenty may be placed in each needle, but there are as a rule not more than six or seven. It is said that one female may lay as many as 120 eggs. The eggs are usually laid in close proximity, each one being covered over with a resinous secretion, and so protected from various enemies. This resinous material is scraped from the leaves.

The larvæ hatch in from two to three weeks, appearing at the end of May and in June; by the end of June or in July they reach their full fed stage (Fig. 3), and then pupate. The larvæ are nearly an inch long when full fed, and, like all the larvæ of this genus, they have twenty-two legs. They are at first pale green, almost whitish beneath, and with black sucker feet, but as they mature they become dull brownish-green, with dusky marks above the prolegs, and with a dark brown head; the sucker feet are yellow, with a brown line at the base. The first brood feed for from four to six weeks, and then pupate amongst the needles or in cracks and crevices of the bark, the pupa lying in a cocoon of compact brown silk. These cocoons are very variable in colour, some being almost black, others dull brownish-grey. They are about a quarter of an inch long, hard and compact.

In many cases these cocoons remain through the winter, but as a rule they give rise to a second brood of flies in August and September; the progeny of the second brood spin their cocoons mainly amongst the fallen needles, moss, and heather beneath the trees. These ground cocoons often occur in bunches, and, like those of the first brood, are very variable in colour. The larvæ which make these cocoons do not enter the pupal stage until the spring. As many as seventy have been found together beneath moss and heather. When the sawfly is ready to emerge it cuts a large circular slit in the top of the cocoon and escapes.

Several other sawflies attack conifers in this country, but the only one recorded as doing damage is the fox-coloured sawfly (*Lophyrus rufus*), which did considerable harm in Argyllshire to Scots Pines in 1890. Miss Ormerod found in the Argyllshire outbreak that plants two to six feet high were most subject to attack. The adult female is reddish-brown, with black spots on the thorax, and with yellow to reddish-brown legs; the male is black, with reddish-brown legs. It occurs on the wing in August and September. One brood only appears to exist, and is found in larval form from the end of May until the middle or end of June.

The larvæ are dusky greenish-grey with black heads, a pale line along the back, and a dusky line with a pale one on each

side of it above and below; the spiracles are placed in the lower pale line. The sucker feet and under side of the body are pale green. When full grown, they are rather more than half an inch in length, and then form an oval, pale yellowish-brown, parchment-like cocoon, both amongst the needles and amongst heather, and in the earth, &c., beneath the trees.

Like the common Pine sawfly, this also is met with in colonies, two individuals usually sitting on each needle. They pupate in June, those kept under observation going into this stage in the third week in June. Although needles and other "cover" lay on the ground in the breeding cage, they pupated in the earth just as described by Kollar. The females which come from these cocoons lay their eggs in August and September, in the needles, as is done by *L. pini*. Apparently the eggs remain in the needles all the winter, and hatch out in early May.

It does not appear certain that sickly trees are more

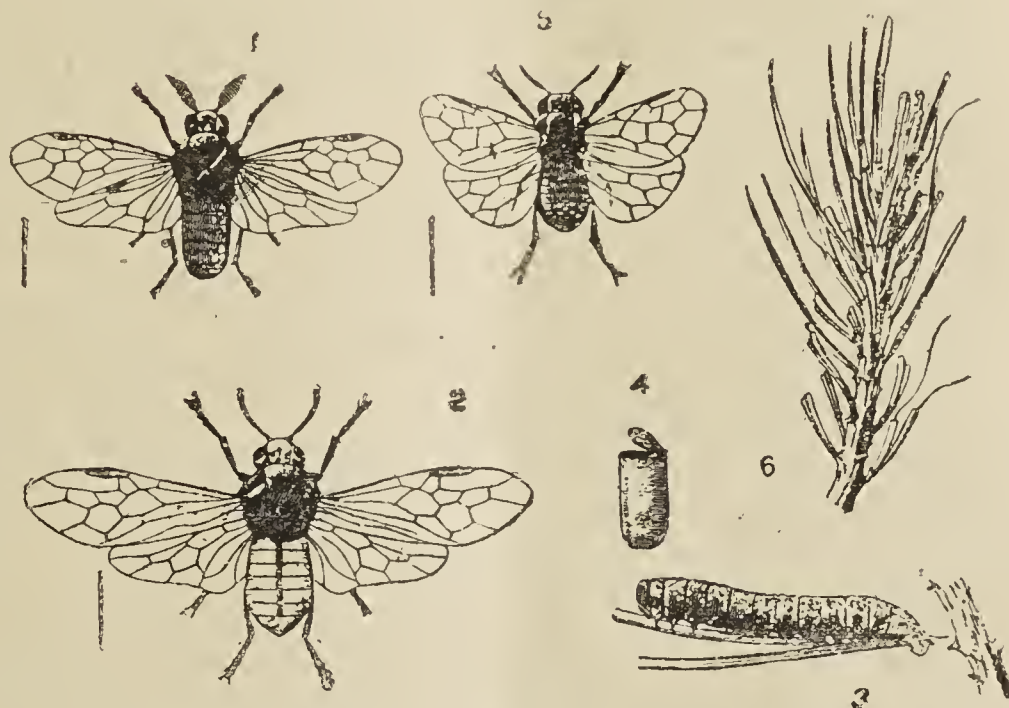


Fig. 1, *Lophyrus pini*, male; fig. 2, female; fig. 3, larva; fig. 4, cocoon; fig. 5, *Lophyrus rufus*; fig. 6, Pine shoot attacked by sawfly larvæ. Lines show natural size of figs. 1, 2, and 5.

attacked than healthy ones, but in any case attention should be given to maintaining plantations in robust growth. All the Pine sawflies have many enemies. Amongst these must specially be mentioned mice and squirrels, which devour large numbers of the larvæ hibernating in the cocoons during the winter: the cuckoo, goat-sucker, and starling also devour numbers of the larvæ and adults. Numerous ichneumon flies also prey upon them.

When young trees are invaded, the larvæ may be easily destroyed by crushing them with a gloved hand. This should be attempted in the early stage of an attack, as at that time the larvæ are present in fairly compact groups, and are readily dealt with. Shaking them from the trees on to cloths spread on the ground is recommended, but is a less satisfactory method of destruction. Another plan is to place fresh Pine boughs beneath the trees, and then jar the larvæ off. All those that fall to the ground collect on the boughs strewn about, and can then easily be burnt. Trees that have been attacked may have the ground around their trunks examined in winter, when the dead leaves, moss, &c., containing the cocoons may be raked together and destroyed. Ornamental trees in parks and gardens may be speedily cleared by spraying with hellebore wash or arsenate of lead.

The Board of Agriculture and Fisheries would be glad if recipients of this leaflet would make it known to others interested in the subject. Copies may be obtained free of charge and post free on application to the Secretary, Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W. Letters of application so addressed need not be stamped.

Sedum spectabile.

This is a distinct and beautiful hardy plant, and is the most popular of all the *Sedums*. The flowers, which are rosy purple, sometimes whitish, are formed in dense corymbs, and contrast well with the broad, glaucous, fleshy leaves. It usually flowers in August, and has good lasting qualities, usually remaining in bloom about two months. It thrives well in a moist and shaded part of the garden.



Fruit Forcing.

VINES IN FLOWER.—Afford Mnscats a free circulation of rather dry air, and a temperature of 80deg to 85deg or 90deg by day from sun heat, 70deg to 75deg artificially, and 70deg at night, falling to 65deg or even 60deg on cold nights. Raise the points of the bunches to the light, and liberate the pollen at midday by gently tapping the stalks of the bunches, or go over the bunches carefully with a large sized camel-hair brush, and afterwards dust them with another charged with Alicante pollen or that of some other different and free-setting variety. Hamburgs and similar varieties set freely in a lower temperature, but they are better for a little assistance from fire heat, say, 60deg to 65deg at night, 70deg to 75deg by day, with 10deg to 15deg advance from sun heat.

THINNING BUNCHES AND BERRIES.—It is advisable to make a selection of the best bunches, and leave only those required for the crop before they come into flower. This concentrates the forces on those retained, and by proper attention to fertilising the flower, a good set and fine bunches are secured. Thinning the berries should commence as soon as they are set, especially in the case of free setting varieties, and where specimens are required for exhibition it should be attended to whilst they are in flower. With the shy-setting sorts thinning should be deferred until the properly fertilised berries can be distinguished by their taking the lead in swelling. Remove surplus bunches, under rather than overcropping the Vines, as too heavy cropping is fatal to colour and finish.

FEEDING.—When the Vines are in full leaf, and the Grapes swelling, they require abundant supplies of nourishment. Owing to the large extent of leaf surface, the Vines evaporate enormous quantities of water under the influence of sunlight, and do most of the work then in assimilating the nutrient elements, the solid matters being left behind in the Vines, and with the carbonic acid gas derived from the air and fixed in the Vines as carbon, build up their structure solidly and healthfully. Stable, cowhouse, and manure heap drainings are excellent, being rich in available potash, and if a pound of mineral superphosphate be added to 30 gallons it is an advantage, while the contained ammonia will soon be converted into nitrates and appear in the deep green colour of Vines, leafage, and Grapes. The liquid must not be applied too strong, as an overdose injures, if not destroys, the young fibrous roots. Shankling also often follows packing the soil with organic matter held in suspension. All the advertised fertilisers are handy and excellent. It is best to give the borders a thorough supply of water, then apply the fertiliser, and water in moderately. A light mulch of short, sweet, lumpy manure will be of advantage in keeping the border uniformly moist.

CUCUMBERS.—Plants in houses and hot-water-heated pits must be syringed twice a day, but let it be done judiciously. The dusting of the pipes with a little flowers of sulphur usually suffices to keep red spider and white fly in subjection, and also prevents fungi spores from germinating. Plants growing in manure-heated frames will not need syringing so often; a sprinkling at closing time will be sufficient on bright days, and not at all when the weather is dull. Give liberal, but not unnecessary waterings of liquid manure at the mean temperature of the house to plants in full bearing. Avoid overcropping and overcrowding the growths. Attend to the necessary stopping, thinning, and tying, keeping a succession of fruit growth. No more fire heat should be used than is absolutely essential. Make another planting, if necessary, so as to maintain a supply of fruit exceeding, rather than equal, to the demand.

MELONS: EARLY PLANTS.—When the fruit begins ripening, lessen the supply of water at the roots, but not so as to distress the plants, for if the foliage has been kept clean and the roots are in good condition, a second crop may be had. Withhold atmospheric moisture, or rather keep water from the fruit, and provide a circulation of dry, warm air, increasing the temperature to 70deg to 75deg, advancing to 80deg and 90deg from sun heat. Cut the fruits before they are very ripe, keeping them in an even temperature for two or three days. If any fruits show a tendency to crack, cut the shoots about half way through with a knife a few inches below the fruit, and diminish the supply of water at the roots and in the atmosphere, leaving a little ventilation constantly to prevent moisture condensing on the fruit.

SUCCESSION PLANTS.—Continue fertilising the flowers when fully expanded, the atmosphere being kept drier and warmer, and ventilation carefully attended to. Stop the shoots at the time of fertilisation one or two joints beyond the fruit. Earth the plants with some rather strong and rich loam after the fruits begin swelling, ramming it firmly, to secure solid fruit, and place a little fresh lime round the collar to prevent canker. Plants swelling their fruits may be syringed in hot weather about 3 p.m., damping the floor several times a day, and in the evening sprinkle the floor with weak liquid manure. Shade only to prevent flagging, and ventilate freely in favourable weather. Maintain a day temperature of 80deg to 85deg, or 90deg with sun heat, closing between 80deg and 85deg, and if an advance of 10deg to 15deg be made after closing it will assist the fruit in swelling, and lessen the supply of fire heat at night, but it must be accompanied by atmospheric moisture. If thrips appear, fumigate moderately on two or three consecutive evenings, taking care to have the foliage dry.

Train the growths out in pits and frames, still maintaining a good bottom heat by linings, and employ thick night coverings over the lights. Sow seeds for raising plants for placing in pits and frames as they are cleared of bedding plants. Add more soil to the hillocks as the roots push through the sides of the mounds, which must be repeated at intervals until the allotted space is filled. Any young plants that are likely to become root-bound should be shifted into pots a couple of sizes larger, to keep them in steady progressive growth until the beds or hillocks are prepared for them.

PEACHES AND NECTARINES: EARLY FORCED HOUSE.—On early varieties the ripening fruit and foliage must be kept dry, but the trees must not suffer for water at the roots, the soil not being allowed to become very dry. As the fruit of the later varieties will not be ripe for some time, keep the atmosphere moist by frequent sprinkling during the day, syringing in the morning and again when closing the house. The night temperature will be perfectly safe at 60deg to 65deg, or even 70deg in warm weather.

FRUIT STONING.—During stoning the trees must not be hurried; 60deg to 65deg at night is ample, and 70 to 75deg by day, avoiding sudden fluctuations. A little air admitted at night will prevent the deposition of moisture upon the foliage to any serious extent, and may be increased when the sun acts on the house, yet without lowering the temperature, which should always advance with the increased power of the sun, and a corresponding increase of ventilation. Avoid fumigation as far as possible, as it dries the atmosphere, and not unfrequently cripples the foliage. Early closing is to some extent an advantage, but it must not be continued too long. It is also advisable to allow a little extra latitude to the growth, but on no account permit foliage to be developed that must afterwards be removed in quantity. Keep the inside border well supplied with water, but not to the extent of causing soddenness and sourness, and feed judiciously with potassic and phosphatic foods.—G. A., St. Albans, Herts.

The Kitchen Garden.

VEGETABLE MARROWS.—If not already sown, these should be seen to now. Unless these can be protected by glass there is no advantage in planting-out before the last week in May. Even if they did not get nipped by frost, the keen winds generally experienced during May are sufficient to check the plants, or practically to ruin them. One seed may be planted in a 3in pot. The plants will turn out of these much more conveniently than when grown two or more together, to be divided at the time of planting, which is often done to save trouble.

MELONS AND CUCUMBERS.—These should receive very careful attention. If the beds have lost their heat, more warm manure should be at once placed round the sides of the frames, treading this down firmly. Cucumbers and Melons must have abundance of bottom heat for some weeks to come, or the plants will not grow freely. The frames should be carefully ventilated, and closed early in the afternoon, while the sun is still shining on the glass. But before doing so, damp the sides and every available inch of soil with tepid water, which will cause a vapour to rise on the inside of the glass and prevent scalding. The lights must also be covered by mats three or four thick to husband the heat secured by early closing.

EARLY POTATOES.—Early Potatoes should be "soiled" as soon as possible, to secure them from frost. It is a good plan to draw a little very dry soil over any which appear, and which are not sufficiently advanced for earthing up. This should be done early in the day, so that the soil will become perfectly dry before night, as it is useless covering with damp soil.

ONIONS.—Now is a good time for planting out Onions which have been raised in boxes. The soil ought to be trodden, and the work done finely. If the soil is dry on the surface, a slight damping down the side of the line will greatly facilitate the planting. It will prevent the dry soil from falling into the hole made by the dibber, which is often very annoying.

THINNING CROPS.—All crops requiring thinning should receive attention immediately they are large enough to handle. No greater mistake can be made at this season than to neglect timely thinning of Onions, Parsnips, Carrots, Turnips, Spinach, and such like crops.

TURNIPS.—More Turnips may be sown to succeed those sown some weeks since. Turnips soon become useless for the table in hot weather, and frequent sowings are the only way to keep up a supply of tender roots. A half shady border is the best place, and the soil should be rich and deep to produce a quick growth.

SPINACH.—More of this should also be sown. This will grow better and prove much more serviceable if grown in partial shade, as it soon pushes up its flower spikes in warm soil.

PEAS.—More Peas of the Marrowfat type should be sown, and sparingly, now that the soil is warmer and drier. Place sticks to all those that are well through the soil, not so much for support as for shelter. It is astonishing the shelter they will afford when the wind is in the east, and which invariably happens in May.

SALADS.—All kinds of salading should be sown to keep up a regular supply. Lettuces should be pricked off into rich soil, and be frequently sprinkled over in warm weather. The hoe ought also to be frequently run through between the plants. Radishes may be frequently sown, also Mustard and Cress.

TOMATOES.—These should have special attention in 5in pots, in as low a temperature as is consistent with the health of the plants. Plants from 10in to 12in in height are preferable to those drawn up to 2ft for planting out the first week in June.—A. T., Cirencester.

The Flower Garden.

SOWING HARDY ANNUALS.—Hardy annuals sown now have a better chance of growing away quickly and strongly than if they had been sown earlier, when the soil was wetter and colder. The dry periods recently experienced have served to bring the soil into good condition by drying up the superfluous moisture and absorbing some of the warm sunshine. Consequently a good surface tilth has been formed, or is in a condition to be readily broken down and rendered fine for seed-sowing. Hardy annuals are usually sown in vacant positions towards the front of flower borders, or they may be sown in beds set apart for the purpose. If in borders, sow in good-sized patches, scattering the seed broadcast. Cover lightly with some specially prepared fine soil. In beds or large spaces the more convenient method of sowing may be in drills 3in to 6in apart. A good selection of hardy annuals consists of the following:—Annual Chrysanthemums, Clarkias, Coreopsis, Cornflowers, Collinsias, Esehsholtzia, Godetia, Larkspur, Linum, Lupins, Mignonette, Nemophila, Nasturtiums, Poppies. A little protection should be given the areas sown until the seeds germinate. Should failure occur, there will be time to sow again, and yet obtain good plants. As the seedlings require it, thin them out. The more room each can have, the finer the plants.

SEEDLING VIOLAS.—Violas from a spring sowing of seed are, or will shortly be, strong enough to prick off into boxes. Afterwards, when strong enough, they can be placed outdoors in permanent positions. They will flower abundantly in late summer and autumn.

PRIMROSES AND POLYANTHUSES.—Plants raised from seed flower freely the first season, but the seed should be sown early. To ensure success in germinating the seed, sow in 6in pots in the greenhouse. They may be grown well into the rough leaf before necessary to prick them out into a frame. With good attention to affording moisture through the summer, the plants will grow to a good size for autumn planting. A packet of seed from a good firm produces some interesting colours.

YOUNG DAHLIAS.—Single Dahlias raised from seed may be potted singly in small pots in a mixture of light, sandy material. Keep them close to the glass. It is important that the stems should be strong and the plants have a good network of fibrous roots when planting out. The succeeding growth will then be satisfactory.

LOBELIAS FOR BEDDING.—Seedling plants pricked out in boxes and advancing rapidly in growth should be topped to make them bushy and prevent premature flowering. Stock plants wintered in boxes should, if not already dealt with, be divided into small portions, replanting in light soil in shallow boxes, and kept moist.—E. D. S., Gravesend.

Nephrolepis Piersoni.

This beautiful fern is now in English nurseries. "Having heard several complaints of late from persons having trouble with this variety sporting back or throwing Boston-fern leaves, we wish to state our experience, hoping that this unnecessary alarm will not injure the popularity of this beautiful fern. In our experience with several thousand Piersoni plants, we find they require a very rich soil after they get started to grow. We use ordinary Carnation soil, one-half rotted cow manure. After they get the pot filled with roots they will stand feeding often, and at no time should they be allowed to suffer from want of water. Plenty of room and light are also very important. It seems to be the impression that too high or low a temperature is the cause of this sporting back, but we are satisfied this is not the case, having tried them in temperatures from 45deg to 75deg, and had no trouble except with a few that got potbound or stood too close to the steam pipe and died out frequently. While we do not pretend to be authority on this subject, we would advise anyone having any trouble with Piersoni ferns to give them better soil, and see that they never dry out. You will soon have them looking different, and the imperfect leaves may be cut off. Piersoni does not lift well from the bench if very large. If you want fine, large plants, keep them in pots, and plunge the pots in soil or moss.—DAVIS BROTHERS, (in "American Florist.")

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible, with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

Fuchsias.

The old plants that have been stowed away during the winter should now be shaken out of their pots and potted into a size smaller than what they flowered in the year before, and the soil made moderately firm around the roots. The soil that suits them best is two parts of good fibrous loam, not of a clayey nature. Good material is usually found in mole-heaps in meadows. Next we want something to lighten the loam in the way of leaf soil, say about one part to two of loam; also some dried and rotted cow manure, rubbed through a half-inch sieve, with a small proportion of sand. The above ingredients, thoroughly mixed, will not fail to grow Fuchsias. Cuttings struck in the autumn and grown slowly, will now make fine plants. If they are tall growing varieties they should be stopped when about 6in high, but the dwarf ones should be let grow, as, being naturally dwarf, they will break out below afterwards. They ought not to be left to get rootbound, as it will be sure to throw them into bloom.

Fuchsias will not stand a very cold draught, and a very regular temperature must be maintained; and this applies also in the watering, for if the water is very cold their foliage will flag, turn yellow, and may die. Both old plants that have been potted up and young ones should be put into a nice heat of about 55deg. An early vinery is a very suitable place, where they can have plenty of moisture, and be kept well syringed, as it will help the old ones to break out better; and care must also be taken to keep them clean and clear of green fly. A slight fumigation will remove aphides without injury. The plants should be well syringed with clean water (the chill taken off), and it is also important to keep the floor and atmosphere moist. Fuchsias should be ready to receive their last shift about three months before you want them for flowering; and a cool, airy pit or frame, shaded from the full glare of the sun, is most desirable when they bloom. It will then take some time to tie-in and stop the shoots.

The branches must be staked out in the shape you want the plant to assume, the stopping to be discontinued about ten weeks before you want them in that condition. Liquid manure may then be given them, at first weak, but slightly strengthening it; and on no account give it them till the soil is completely exhausted and the pots full of roots. After they have finished blooming, it is best to put them outside to ripen their wood, and also better for securing cuttings. They should be brought in when it begins to get cold, and placed away under a staging, or anywhere where the frost will not hurt them, and where they can be kept dry, first pruning them back to the shape you want them for the succeeding year.—W. H. LEE.

[This letter has been held over for some weeks.—ED.]



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

BOOK (W. H.).—In order to draw the plan of a garden or landscape to scale it is necessary to have at least a slight knowledge of the principles of geometry, acquired through the aid of a textbook, or from a teacher. We would therefore commend you to the book entitled "The Elements of Geometrical Drawing," by H. J. Spooner. London: Longmans, Green, and Co., price 3s. 6d.

WHAT ARE THE COMMONER GARDEN WORMS? (Naturalist).—The commonest is the earthworm (*Lumbricus terrestris*), though other species are not uncommon, the red worm (*L. rubellum*) being very partial to heavily manured ground or that containing much decaying vegetable matter and manure. The purple worm and brandling are also common in gardens and on lawns.

GRASS LAND "FOGGED" (G.).—I have about two acres sandy soil. For the last two years I cut hay from it. What would be a good dressing for it, as it has become fogged and short of Clover? I am giving it a little cowdung. Would lime suit?—[The best plan to adopt in such a case is to give the land a dressing of 5 cwt per acre of ground lime or of basic slag and 1 cwt sulphate of potash, as lime and potash are the dominant manures for Clover. A single turn of a harrow over the fogged land at the time of applying the manures is also to be recommended.]

WHAT IS THE COST OF TANNED GARDEN NETTING AND OTHER PROTECTIVE MATERIAL FOR FRUIT BLOSSOMS (R. S.).—Ordinary tanned, usually termed fish, netting, ranges about 1d. per square yard, but is usually sold in widths of 2 yards wide at 2d. per running yard, and 4 yards wide at 4d. per running yard, this being diamond mesh. A third more should always be allowed than the surface measurement. Canvas, brown Hessian, is 54in wide, price 8d. per yard; scrim, 54in wide, 8d. per yard; frigi domo, 2, 3, and 4 yards wide, 1s. per square yard; woollen netting, 4in mesh, about 1s. 2d. per square yard.

NARCISSUS PROPAGATION BY OFFSETS (T. R. M.).—This simply consists in separating the small bulbs that issue from the base of the parent ones, and planting them out separately for a year in order that they may grow sufficiently large for flowering. The majority of the species increase somewhat freely by this method, and permanent clumps or collections may be lifted during the months of July and August, when they are usually dormant and quite free from roots, the offsets removed and planted without delay. This is a good plan to adopt where there is likely to be a danger of injury caused by the flowering bulbs being overcrowded, arising from their multiplying.

COLLECTION OF CUT FLOWERS (W. E. A.).—You have our sympathy, and the judges ought, we think, to have taken precedent into consideration in bestowing their awards. You say you have always shown the same flowers as distinct kinds before, but do not say whether you hitherto obtained prizes, because if you did not, the disqualification question would not then be raised. We think that *Azalea mollis* and *A. indica* are not "distinct kinds," as meant in the terms of competition, though of course they are distinct species. The matter resolves itself into one of loose phraseology, a fault too common in flower show schedules and in the stipulations for competitions. If gardeners as a body knew a little elementary botany (which so many regard as useless), they would place a better value on nomenclature, and instead of talking of "kinds," they would say genera, or species, or varieties, as the case may be. Under the circumstances, your wisest course will be to get the word "kinds" deleted, and the word "genera" substituted.

OUR DATE OF PUBLICATION (H. S. C.).—The *Journal of Horticulture* is issued about three o'clock on Thursday mornings to the G.P.O., whose collecting vans call at the printing office. Please note our correct address.

SPRAYING FRUIT TREES (L. N.).—Spraying should be commenced at once for all general lines of nursery stock. The lime, salt, and sulphur preparation should be applied before the buds open, and the same is true of all strong sprays. Arsenate of lead and Bordeaux should be applied as soon as the blossoms fall, and again as may be necessary to keep the foliage well covered, until the fruit is nearly grown—say, four times in the season.

WHAT SHOULD BE THE AMOUNT OF LABOUR PER 1,000 SQUARE FEET OF GLASS IN PRIVATE GARDENS? (P. T.).—This entirely depends upon the character of the structures, but for mixed houses, say a greenhouse, stove, vineries, and Peach houses, one man, a journeyman, is a fair average allowance, though in most cases the work is varied, spare time being filled up in other departments and at other times assistance given, as in the case of Grape-thinning, &c., from previously or otherwise assisted parts of the establishment. Indeed, no correct estimate can be given without stating nature of charge.

PIPING FOR GREENHOUSE (Florist).—We desire to heat a small house 16ft by 40ft, with hot water, using 2in flow pipe, the heater to be below floor of the shed. What is the best way to pipe it, and how many flows and returns are needed if returns are 1½in and bring the temperature to 60deg? Outside temperature is sometimes 20deg below.—[To heat the house properly, about 300 square feet of radiation will be required, and this is too much for one 2in flow. By using two flows, and placing one upon each side wall or upon the purlin posts, if there are any in the house, and then using about twelve 1½in returns, the temperature desired can be obtained. The returns can be divided between the two walls, or if there is a middle bench where bottom heat is desired some of them may be placed there. In case the end of the house is exposed it will be well to carry the coils partly across the end. If there is no door in the end of the house farthest from the heater, a very simple method of piping the house will be to run a coil of five 2in pipes clear around the house.]

MARKETING BUNCH OF RHUBARB, ONIONS, TURNIPS, &c. (J. J.).—A bundle of Rhubarb comprises 20 to 30 stems, according to size, and the small retail bundle consists of three stems when of good length, as in forced, or more in case of the smaller sorts. A bunch of young Onions is as many as a man can hold in his hand arranged in fan-shape, the number varying according to the size of the plants. A bunch of Turnips is 20 to 25, though they are usually made up smaller for retail purposes. A bunch of Carrots is 36 to 40, these, as in the case of Turnips, being often smaller to meet retail requirements. A bunch of Radishes, termed a hand, contains from 12 to 30 or more according to the season. A bundle of Asparagus contains 100 to 125 heads, but large heads are made up in bundles of 25, 50, or 100, so as to meet all requirements. Sea-kale may consist of 12 to 18 heads to the bundle, though 6 well grown heads will fill a punnet, and be as much in meat as twice or thrice the number of heads of lesser size. A bundle of Celery contains from 6 to 20 heads, but the former is most in repute for large heads.

LAND FOR AGRICULTURE AND FOR MARKET GARDEN PURPOSES (Old Reader).—The difference between taking land for agricultural and taking land for market garden purposes is that by the former the land may only be used for agricultural crops, or such crops as come under the definition of vegetables, and in that case the outgoing tenant can only claim for unexhausted improvements at expiration of tenancy, and in many cases not that, as the landlord very often nullifies the Act of Parliament (Agricultural Holdings) by inserting a clause in the agreement to that effect. In the case of land for market garden purposes the tenant may not remove anything of a permanent nature, such as fruit trees, and though he may erect glass houses, and even remove them before the expiration of the tenancy, he cannot, taking the land for agricultural purposes, claim compensation for such improvements as he may have made in a market garden direction, such as fruit trees, nor take away any part of them that will prejudice the landlord's interest in reletting the land. If, on the other hand, the owner lets the land to be used as a market garden, compensation may be claimed by the tenant for unexhausted improvements, in which case the rent will be double or more than if it were to be used for agricultural purposes, and come under a different category. As the proprietor mentioned putting a lot of trees there, it is clear he does not intend to let the land to be used as a fruit garden, but only for agricultural purposes, though we do not see how objection could be taken to vegetable crops.

INSTRUMENT FOR POISONING WEEDS (Weed-sting).—Apply to Mr. C. E. West, Higham Hill, London, N.E.

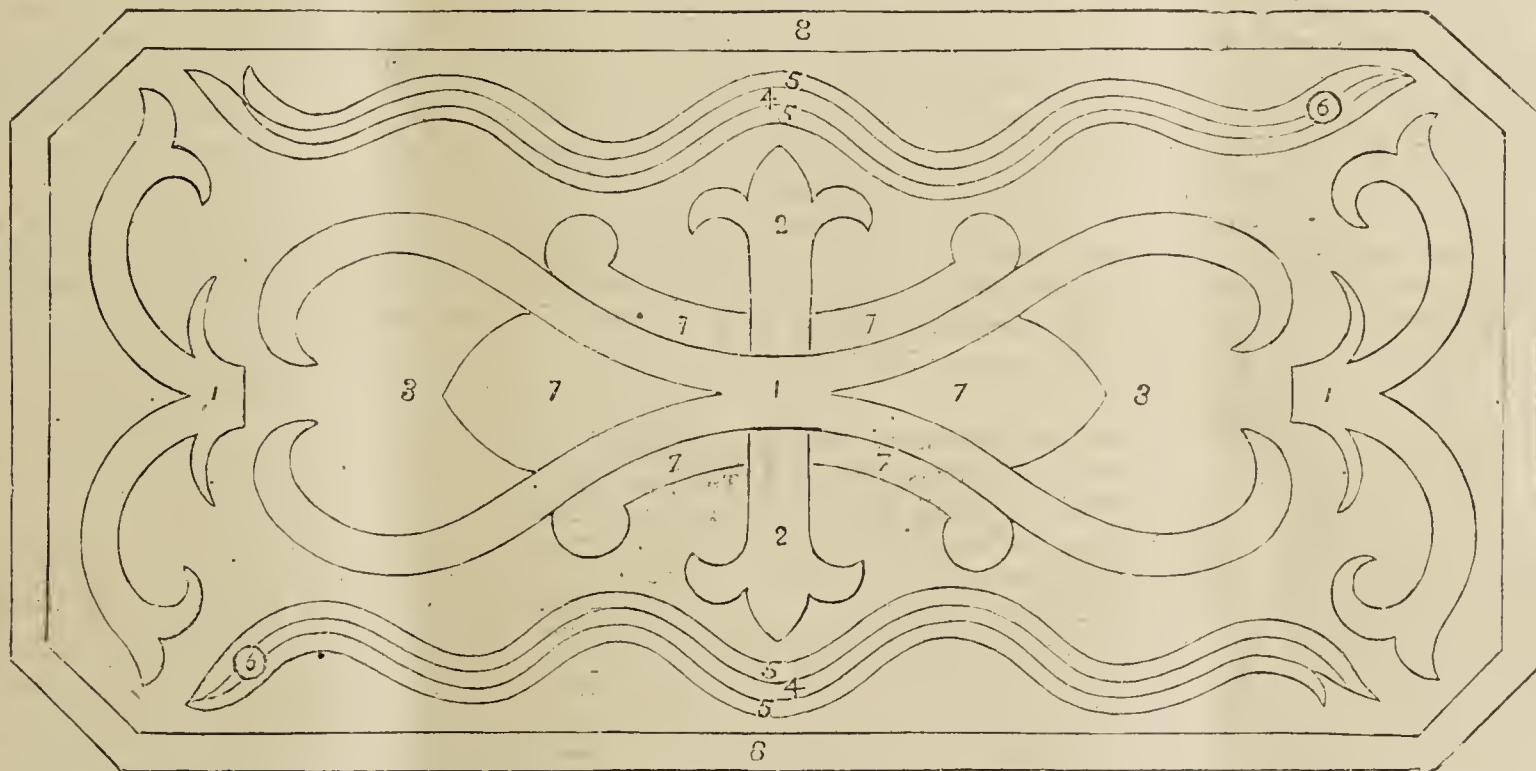
PLYMOUTH SHOW.—In report of Plymouth Daffodil Show (April 21) line 25, paragraph 2, and line 2, paragraph 7, "Penzance" should have been "Truro."

PLAN FOR CARPET-BEDDING (J. F.).—We here give designs for a carpet bed, an exact copy of one which was formed at Hampton Court, and which attracted much attention. In the design submitted the author departed from his usual style by enlarging the groundwork area, and the lengthy proportioned figures, with their graceful curves and warm tone of colouring, appeared in bold relief. The figures of two serpents were formed to balance the heavier massing. The rainbow sides of the two monsters were ably represented by *Alternanthera amœna*, the spinal column by *Mentha Pulegium gibraltarica*, while a single compact plant of *Sempervivum californicum* formed the eye of this vegetable saurian. Here we may fairly ask the question, How far may we go in borrowing figures from the animal kingdom to represent the various designs of carpet bedding? Not far, we fear, as outside the lizard family most are of harsh angular outline. One can introduce with charming effect as a groundwork *Achyrocline Saundersoni*, a shrubby plant of the Lavender family. If cuttings are inserted in a cold frame in autumn, and treated precisely like those of shrubby *Calceolarias*, they will strike readily. This will be

Publications Received.

The Journal of the Board of Agriculture, April, 1904, 6d. by post. Contents: Forestry education in Great Britain; housing of poultry on farms; Belgian department of agriculture; breeding of live stock in Belgium; insurance of live stock in Bavaria; preparation of alcohol from Potatoes in Germany; United States food standards; aphides or plant-lice; prices of agricultural produce. * * "Liver-rot in sheep," a reprint of articles in the Journal of the Royal Agricultural Society of England, with copy of correspondence between the Board of Agriculture and Fisheries and the Royal Agricultural Society of England, and a prefatory memorandum. London, 4, Whitehall Place, S.W. * * "Old West Surrey: Some Notes and Memories," by Gertrude Jekyll, with 330 illustrations from photographs by the author. Longmans, Green, and Co., 39, Paternoster Row, London. 13s. net. This is the latest book by Miss Jekyll, and is most admirably arranged. We hope to review it shortly.

"The Calendar of Garden Operations," enlarged edition, adapted to the requirements of cottage gardeners, allotment holders, and amateur gardeners, by members of the staff of the "Gardeners' Chronicle." Published from 41, Wellington Street, Strand, London, price 7½d., post free. This is an excellent little book, well arranged, and comprising the main features



Design for Carpet-bedding.

1, *Alternanthera paronychoides major*.
2, *Iresine Herbsti*.

3, *Achyrocline Saundersoni*.
4, *Mentha Pulegium gibraltaricum*.

5, *Alternanthera amœna*.
6, *Sempervivum californicum*.

7, *Pyrethrum Golden Feather*.
8, *Sedum glaucum*.

found a valuable hardy addition to the carpet bed, and a plant which stands clipping admirably. Failing this, the following might be substituted:—*Antennaria tomentosa*, *Leucophyton Browni*, *Mesembryanthemum cordifolium variegatum*, *Cineraria maritima*.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (A. L.).—1, *Anemone appennina*; 2, *Arabis alba variegata*; 3, *Vinca radicans variegata*. (J. P.).—1, *Thalictrum anemoneoides*; 2, *Epimedium rubrum*; 3, *Phyllostachys Quoilii*; 4, *Polygonum elatior*; 5, *Adoxa Moschatella*; 6, *Potentilla nivea*. (A. N.).—1, *Viola cucullata*; 2, *Narcissus Humei*; 3, *N. poculiformis*; 4, *Prunus persica fl.-pl.*; 5, *Prunus persica fl. rosea pl.* (Norwood).—1, *Primula rosea*; 2, *Caltha palustris fl.-pl. or King's-cups*. (N. O.).—1, *Dendrobium chrysotoxum*; 2, *D. Boxalli*; 3, *Odontoglossum Rossi*; 4, *O. Pescatorei*; 5, *Cypripedium villosum*.

NAMES OF FRUITS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (H. M. M.).—Apple, Lemon Pippin.

Trade Catalogues Received.

W. Clibran and Son, Altrincham.—Plants.
Robt. Holmes, Norwich.—*Chrysanthemums*.

of gardening, while illustrations are liberally used. * * "The Estate Magazine," April 2, 1904. Single copy, 6d., from the Country Gentlemen's Association, 2, Waterloo Place, Pall Mall, S.W. Some of the articles bear on "Estate Book-keeping; to make the best of our fruit; Peas as a field crop; pheasant rearing; pig-breeding and feeding; slate refuse; sugar beet cultivation in 1903; and some estates of the North." * * "Spring Gardening," No. 13 of Rural Handbooks; post free, 7d. This is a booklet for the mere beginner, and seems to us expensive for all it teaches. * * Board of Agriculture and Fisheries, Leaflet No. 92, "Bunt and Smut." Also Leaflet 102, "Quarter-ill, Quarter-evil, or Black-leg." * * "Some Neglected Aspects of the Fiscal Question," by John Shanks, Tubal Works, Barrhead, N.B. Glasgow, David Boyce and Sons, 1904. "It is to the labour problems that attention is here directed." * * "The Citizens' National Union, being an old age pension scheme revised and brought into line with the Fiscal Question of to-day," by John Tullis, Glasgow. Paisley, Alex. Gardner. Price 6d. * * "Railways in Rhodesia, with maps and statistics." London, Rhodesia Railways, Limited, 2, London Wall Buildings.

"The Orchid Review," an illustrated monthly journal of orchidology. Price 6d. net, from the editor, Lawn Crescent, Kew. Contents: Chysis and their culture; *Diacrium bicornutum*; epiphytic orchids and their support; leaf mould for orchids; orchids in season, cultural operations for the month, &c., &c. * *



A Few Notes on Horse Breeding.

The breeding season for heavy horses is already nearly a month gone, but it may not yet be too late to make a few suggestions in connection therewith. There is a plentiful supply of entire horses travelling the country, and farmers have not far to go to find one when required. Whether the majority of them is worth finding is quite another matter.

We have noticed at the farm sales this spring a very considerable falling away in the quality and condition of the horses offered, and consequently in the prices realised. All farmers are not equally gifted with a knowledge of horseflesh, and the points required in breeding mares and the choice of stallions; but there must be something more than a coincidence in the fact that all these sales were alike as to the poor quality of the horses to be sold. Some farmers breed no horses at all, but buy foals or yearlings, which they grow on until they are of workable age. At one sale of stock belonging to this type of farmer, out of the whole 22 or 23 horses offered, there was not one absolutely sound one. They were bought as foals and yearlings from fairs or from small farmers. We know another farmer who does not breed, but he buys his relays when fully developed and fit for work at three or four years old. He has to pay more dearly for them, but, as a rule, knows what he is buying, and his teams are a credit to him.

It would be interesting to know what proportion of foals bred here annually are bred by occupiers of small farms, but we imagine it must be a large one. Hundreds of small farmers owning one, or at most two, mares, breed a foal annually, and depend upon it to provide a portion of the autumn rent. These small farmers, however, do not usually own mares of high class. They are often old, and still more frequently unsound, but are valuable to their owners as being regular breeders. We have known such a mare breed eleven foals in eleven successive years.

These "little" men do not like paying heavy horse fees of two or three guineas, but expect to get a foal for £1. To them a foal is a foal so long as it will sell when reared, so these creatures are badly bred from unsound parents, and it is not surprising that purchasers do not find them grow on in the right way. The best class of heavy horse is generally found on farms of fair size, the occupiers of which make a special business of breeding. These men seldom or never sell foals, and rarely sell anything under five years. Breeding from sound mares by sound horses, the produce must be worth growing on, and the breeder of such finds them much more profitable than bullocks as grazing stock. He therefore does not sell, but grazes them himself, so the non-breeding farmer who wants yearlings or foals has to buy the common bred ones from the small farmers who have them to sell. We have known many farmers breed successfully, and then, after two or three years of bad fortune, give it up as hopeless, and try no more.

There are two kinds of bad luck in horse-breeding; one farmer cannot get his mares to breed at all; another can have plenty of foals, but cannot keep them alive. Now, doubtless there are many non-breeding or barren mares, but not nearly so many as some people imagine. We have known so many cases of mares being declared non-breeders which, after getting into fresh hands, have bred regularly, that we have become somewhat sceptical when hearing one so described. Sometimes the men in charge of mares do not wish them to have foals, and this especially applies to single waggoners. A waggoner is often loth to lose the best animal out of his team for more than

half the year, and to have her come back to him with all the bloom off. Drugs are often administered to prevent breeding, but they are more often still the cause when they have been given, not with that particular object, but for other reasons.

If attempts to breed from a mare have failed, and the owner is anxious about it, and willing to give time to effect the purpose, the best way is to turn her away to grass as soon as there is any; to allow no corn, and to use a young and active stallion. Many entire horses are too fat by half, and not in sufficiently muscular condition. One of the best of foal-getters we ever knew worked in a cart from August to February, and we know of a similar case at the present time. Some of these common 20s.-a-mare-horses have to work, and work hard, out of "the season," and that is often the secret of their success.

Then, there is the want of success in rearing. There is no need to hide the fact that foals are delicate animals, and require careful treatment. They are very susceptible to sudden changes of temperature, and should have arrived at five or six weeks of age before any risk may be run of letting them be out in the rain. The loose-box in which a mare and foal are confined must be kept in a good sanitary state. Foul bedding must be regularly cleaned out, and disinfectants freely used. Even with every care success cannot be assured. There is a complaint named joint-evil, which is very fatal to foals, and it attacks them on some farm premises with great pertinacity and in spite of all precautions. It is also very difficult to cure. When there is a difficulty in getting a mare to breed, sometimes the use of a light-legged stallion will get over the trouble. Then, the use of one of the cheap, hard-worked horses might do the trick. Once in foal, it is not difficult to get a mare to breed again if care is taken to mate her again about the tenth or eleventh day after foaling. If that date is missed there may be a long delay.

Work on the Home Farm.

The past week has been marked by ideal spring weather, and except on one very wet day, great headway has been made. The rain was most opportune, and quite sufficient to soften the hardest of clods. Everywhere around do we see the drills at work, and there will be very little late sown barley after all.

Those who, like ourselves, had already sown-up, are having the satisfaction of seeing barley and oats come through the soil in record time; and a continuance of the present warmth will soon put spring corn into a state of average forwardness, which could certainly not have been anticipated a month ago.

We are putting our mangolds in a few days before our usual time, but the opportunity immediately after such a grand rain was too tempting to be disregarded. We have ridged, manured (12 loads to the acre), and split the ridges, and drilled, all in a few hours, thus preserving the moisture so necessary for the germination of mangold seed. We have not steeped our seed before drilling this year, as it appeared quite unnecessary.

Wheat is improving, but it still looks very badly. We are going to top-dress ours with 1 cwt nitrate and 2 cwt superphosphate. We shall roll the wheat first, then sow the manure, and harrow in with light harrows.

Many farmers will question this top-dressing as being unlikely to pay. We are confident about it. We shall want every atom of wheat-straw that we can produce, and if we grow 10 cwt more straw per acre by aid of this top-dressing, we shall be well repaid, apart from any probable increase of grain. We know that some people do not highly value straw for use on the farm, putting it at not more than 20s. per ton. If we could buy straw at 20s. and sell manure at 5s. per load, cattle feeding would pay.

With plenty of sunshine and no frost, pastures are running right away from the sheep, which are naturally doing very well. Having got our lambs docked and counted heads, we find the tale very satisfactory; 1½ lambs per ewe will do very well. Having marketed our best hogs, direct from turnips, we are clipping the culls and giving them cake on seeds. Having been relieved of their wool, they thrive wonderfully if the pasture is good, and they will soon be ready for market. Store pigs are a little dearer, but pork is almost unsaleable.

Lambs' tails should be docked at once if they have not yet been done, and castrating should also be performed where it is deemed desirable. In districts where sheep are usually fed off at twelve months or less there is not much benefit from castration, if any, but there is an advantage if fat wethers are the animals in demand by butchers.

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Journal of Horticulture.

THURSDAY, MAY 5, 1904.

Leaves.

THE popular mind the aspect of a full foliaged tree suggests the idea that it is the function of the ramifying fabric of trunk, branches, and twigs to produce the leaves which bedeck them; whereas in point of fact, it is the latter which are the builders both of themselves and the woody portions which bear them, plus the unseen labyrinth of far spreading roots which lie beneath the soil, and often rival in extent the aerial branches above it.

It is quite true that roots and leaves together are essential to the building process, and that their growth and extension are correlated; but the roots are merely providers of more or less raw material for the actual builders—the leaves—which, drawing upon the supply of water, and the simple salts dissolved in it, fashion, with the aid of the carbonic acid gas absorbed from the air and the all-essential vital-influence of the sunbeam, both their own fabric and that of all the rest of the tree, plus the chemical constituents which it may contain; and the flowers and fruits which are its ultimate aim to perfect.

A tree in point of fact is less an individual than a gigantic community, the leaf being the individual proper; a little on the lines of the coral polyp, in so far that during its existence it adds its mite to a more permanent growth which long survives it.

We have been careful to say "a little on the lines," because there are material differences in other directions. The coral polyp simply builds up its quota of the edifice *in situ*, while the leaf when its own structure is complete, fashions through its chlorophyll, and the action of the sunbeam thereupon, a contribution of sap to the general fund as it were, and with this prepared material a myriad busy cells beneath the bark of trunk and branch, build up the annual ring of wood and so strengthen the fabric more and more as its branches extend abroad and exercise a greater strain.

In vegetation below the rank of trees, i.e. devoid of obvious trunks and branches, we have

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest; Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

the leaf; but, except in the fungi, the essential, vital work is always done directly or indirectly, by the green chlorophyll granules. In herbaceous plants the surplus energy, which in the tree would thicken its timber, goes to build up, in addition to its seed, a root-stock, bulb, corm, or tuber, stored with nutriment sufficient to give the plant a fair start when the next growing season sets in, precisely as in the autumnal buds of the tree there is a reserve for the same purpose. In annual plants, where no such provision is made, there is a correspondingly greater profusion of seed, which serves the same purpose of bridging over an adverse season.

The mention of the seed brings us to the consideration of another feature of the leaf—one of the most wonderful of all—and that is, its metamorphosis into the flower. The popular idea is that leaf and flower are fundamentally distinct, and we cannot wonder at this when, for instance, to take a present example, we see the broad, fan-like leaves of the Horse Chestnut, and compare them with the tall, snowy plume of its flowers, or when we contrast the simple foliage of the Rose with its finest blooms. The botanist, however, will tell us, and be able to prove to us, if we be intelligent enough to follow him, that every blossom is built up of modified leaves, i.e., leaves which in process of time have gradually changed both form and function, until from simple flowers like the *Richardia*, in which we see, as it were, a step, more and more complex ones have arisen, until all indications of origin appear to be lost. Flowers, however, occasionally hark back, some of their parts or organs assuming green and leafy forms, and in so doing give clues to their genesis.

When, too, we consider the general sameness of function in leaves—i.e., to catch as much sunlight and absorb as much carbonic acid as possible, we fail to be struck by their infinite diversity of form, even though we take into account the necessity of great modifications to enable plants to live in the equally varied environments which land and water present. Finally, amid the marvels of leaf formation, we must not omit to mention the presence within some of them, perhaps in far more of them than we imagine, of nerves and muscles, however differently these may be constituted from those of animals. It suffices to mention the Sensitive Plant and Venus' Flytrap to bring this fact to mind; while a very little study of climbing plants with twisting stems and tendrils will show to us, as they did to Darwin, that plants are by no means the senseless things they are usually regarded as being.

Floral Decorations.

Using Seasonable Flowers.

All flowers for our purpose, or for any purpose, should be cut before they reach the climax of development to have them in their pristine freshness. A few hours earlier way in summer may mean days in their subsequent durability. Daffodils we like to cut in the opening bud stage, and expand them in a temperate house ere "dishing" them up; thus treated they are cleaner, fresher, and brighter. Tulips are amongst the finest of all flowers to arrange, and none exceed them in grace if they are loosely set into long-mouthed vases, and they have lasting power and brightness as additional merits. Duc Van Thol, in its three distinct colours, gives a pleasing effect if lifted entire, the roots washed free of soil, wrapped in moss, and a dozen or more, each colour separate, set in old china soup plates, shallow bowls, or similar receptacles, with a little top-dressing of cleanly-picked moss—the fern-like *Hypnum proliferum* for preference. With a liberal allowance of soup plates thus furnished, and a feathery palm for a centrepiece, we have rung changes on the dinner-table for a week with one same flowers—red one night, yellow another, then red and white, and so on.

The occasional introduction of a small Cocos to the dish, or soup plate, is commendable as a change, and an epicurean floral critic was once good enough to say that soup plates thus furnished made a feast fit for the gods. With long stemmed forced Tulips, cut, their pride has had a fall which they seldom wholly recover, although with trumpet vases the drooping if not excessive can be tolerated. For the breakfast table we have sometimes had to stake each bloom before inserting in the bowl filled with wet sand. (Bulbs not used in this instance). Clean willow twigs for staking are preferable, stakes and stalks being readily secured together by an indistinguishable strand of raffia.

For a luncheon or dinner table we know of nothing more delicately refined or exquisitely coloured than Shirley Poppies in their season. True, they are fleeting, and it is essentially necessary to gather the flowers in early morning (six a.m.), place them immediately in water, and transfer to a cool place until wanted. We have not tried the sealing process, having

found the above plan sufficient for our purpose. Wild grasses, which flower contemporaneously with the garden Poppies, are their accompaniment for harmony in decoration; and should anything more be required for the centrepiece in the way of foliage, an informal fringing of *Panicum plicatum* is suitable and pleasing.

With Shirley Poppies, or Iceland Poppies, the decorator need have no anxiety about mixing colours; cut the stems long, drop lightly and loosely into the vase (use dibble for bowl of sand) without crowding or studied arrangement lest love's labours be lost. Sweet Peas and Gypsophila not only go well together, but probably will always be thus associated, whatever critics say about the Peas being over "gypsophilised." We have never met with ladies, including, with all respect, the "new woman," who failed to appreciate this union of colour, fragrance and elegance, and probably never shall. Their opinion in these matters is seldom wrong, and—

Beauty, like wit, to judges should be shown;
Both are most valued where they best are known.

Sweet Peas take highest rank in our subject, and we find preference given to clear whites, decided blues, and pronounced shades of red; hence we restrict our collection to the self-coloured kinds.

May flowering Tulips are grand subjects for cutting, and as an auxiliary to setting them up we think nothing surpasses, if it equals, Solomon's Seal; flowering, as it does, at the same time, it seems specially intended for the purpose. All the Daisy or Marguerite-typed flowers are peculiarly well suited for all phases of decoration. The *Doronicums* are bright in their golden glow with extraordinary lasting powers when cut; in fact, a few days in water improves them, and the Great Ox-eye Daisy (*Chrysanthemum maximum*) is incomparable in its way, and the most endurable of cut flowers.

The arrangement of cut flowers in the reception rooms is, independent of their setting up in vases, an art in itself. Plants, of course, form the *pièce de résistance*, and the more flowering plants there are employed, the less use will there be for cut flowers; but, possibly, the greater need of taste in their disposal. The size of the room, its use, and window lighting, are all matters to come into calculation. From the bijou apartment, yept my lady's boudoir, to the grand salon, there is a vast difference. For the former, such things as an orchid spray, backed up with a bit of Maidenhair, low moss-lined bowls of Violets or Primroses, a vase of Freesias, Tea Roses, or what not, if refined, are welcome; but such dainty morsels are often lost in the height and depth of the stately reception-room.

It must be explained that although the Lilies of Lent initiated our theme, it is intended to cover the whole season; hence, for the big room we know of nothing finer for brightening up a dark corner than a bold arrangement of Oriental Poppies, and given a background of two or three Kentias they are very effective. Later on the Torch Lilies (*Tritomas*) give equally good results.

Roses, of course, play a prominent part in floral decoration, and Tea Roses, one variety to a vase, cut in good sprays standing up lightly and naturally on small side tables, have a daintiness peculiarly their own. H.P.'s in their season are somewhat "droppy" subjects; and we find that shallow bowls, or old, square-crown Derby vegetable dishes, in which, with short stems they can be set *en masse* with some of their own fresh foliage protruding, is a grateful and comforting method of dishing up these indispensables. Wallflowers are acceptable if not dumped down faggot fashion. With these, something twiggy, like sprays of the Snowberry, is useful to prevent crowding, and by making a foundation of this in the receptacle the Wallflowers can be inserted one by one till sufficient fulness is obtained. A bowl of the old blood-red Wallflower, and another of Cloth of Gold are charming for the hall table.

As already hinted the mixing of species and clashing of colours is to be religiously avoided. Slovenliness is, of course, an abomination, but over-elaboration often defeats its object. Nature herself provides plenty of object lessons in all directions, and the inquiring eye will not be slow to see, nor the ready hand to grasp, her incomparable lessons for enlargement or modification as the case may suit. There are times when the decorator suffers from an *embarras de richesse*, and there is more danger of overdoing the work or badly doing it than at any other. There is safety in simplicity, but nothing commendable in despising common flowers because they are common; nor any justification for using more than is necessary because they are plentiful. Consistent and clever arrangements save time, save flowers, when flowers are scarce, and last, not least, may be salvation to young hands just receiving their commission who are a little apt to copy those—

Whose incoherent style, like sick men's dreams,
Varies all shapes, and mixes all extremes.

DECORA.



Odontoglossum crispum Prebendary Bevan.

This handsome variety received an award of merit when staged by Mr. H. T. Pitt, of Stamford Hill, N., at the meeting of the Royal Horticultural Society on March 22nd this year. Though the segments do not form a close rounded flower, but rather radiate, yet they are stout and well-expanded. The ground colour is white, heavily blotched and spotted with brownish-red; and they are large. Mr. G. Shayer's drawing shows the character of an individual bloom.

Cultural Notes.

The Phalænopses will have to be looked over now, and given new moss and baskets when necessary. When a large number of plants are grown this is rather a large undertaking, as no orchids are so easily injured by root disturbance as these; consequently, the greatest care must be taken with them. Take first all those plants that do not need a new basket, but only a little renovating of the compost. As much as possible of the old decayed moss should be picked out from among the roots with the fingers and a pointed dibber. Where the roots are very close it may even become necessary to use the syringe and force out the loose particles.

Then before adding new surfacing moss, put a few pieces of crocks with only the thinnest layer of moss below them, as everything must be done to render the whole light and porous. The surfacing moss must consist of green growing points of sphagnum carefully selected, the rougher portions of the moss being used for other kinds, and for covering the drainage crocks. Should the plant be loose in the least make it thoroughly firm before returning to the growing quarters, for it is obviously impossible for these delicate roots to obtain a hold on the compost any other way.

Other plants, owing either to badly decayed compost or to having outgrown their baskets, will have to be rebasketed. Very carefully disentangle the roots, and if they are much entwined about the basket rods pull these apart carefully by drawing the pins out of the corners and removing those rods that have no roots attached. In extreme cases it may be necessary to place the old basket entire within the new one; but I do not recommend this if it can be avoided, as it leads to trouble another year by its decay, a kind of fungus spreading from the decayed wood to the moss.

When free every bit of dead or decaying root must be cut away, the whole plant washed in tepid water and laid on a warm stage to dry before rebasketing. Practically it is only a surfacing of moss that these plants need, the bulk of the basket being filled with clean crocks. But a little is necessary to prevent bruising of the roots in placing the crocks, while the plants are more easily firmed by its use. A tidy, neat surface is necessary from the point of appearance, and also because it is more easy to tell whether or not the plant is dry than when left rough. A pair of scissors or shears may be used to trim it, and I need hardly say that these, and the compost, and everything else about the plants, must be scrupulously clean.—H. R. R.

A Yellow Lipped Cattleya citrina.

A form of *Cattleya citrina*, with the entire flower of one uniform yellow colour, was noticed lately in a lot of plants in flower with Siebrecht and Sons, New Rochelle, N.Y. The ordinary type has the median lobe of the lip very pale or white, but in the plant observed the lip is of a deep rich yellow throughout.

Epiphytic Orchids and Their Support.

It is known that most orchids, like many other plants, harbour in their roots endophytic fungi. These fungi act the part of intermediaries between the orchids and the medium on which they grow, and it is interesting to study their mutual relations, which are far from unimportant. In fact, we know that epiphytic orchids generally confine themselves to some particular habitat. In South America many orchids affect the trunks of tree ferns or of *Crescentia Cujete*, others are found on *Pandanus*, &c.

M. Jacob de Cordemoy has made a study of the relations existing between the *Vanilla* plant and its support, and he has communicated to the Academy of Sciences at Paris the result of his observations. He concludes that there exists between the lateral and aerial roots of the *Vanilla* and the support to which they cling a mycorrhiza, or a combination of the roots with an endophytic fungus. The endophyte throws out a ramified mycelium, which forms a strict connection between the lateral roots and its living support. This morphological connection probably corresponds to some physiological connection, the fungus being able to find in the tissues of the living support certain nutritive principles useful to the growth of the orchid. In this case there would be a real symbiotic connection existing between the mycorrhiza and the roots of the orchid.—("Revue Horticole.")

Chysis and Their Culture.

All the varieties have roots that penetrate rather deeply into the compost, therefore the plants should be grown in pots, to which wire suspenders may be attached, in order that they may be suspended close up to the roof glass. The pots should be drained to about a quarter of their depth with the fern rhizome that is taken out of the peat, but previous to use it is advisable to have it thoroughly dried, otherwise fungoid growths may appear, and interfere with the welfare of the roots of the plant. The best material to grow them in is a mixture of peat, leaf soil, and sphagnum moss in equal proportions. Fill up around the roots with the compost to within half an inch of the rim of the pot, and finish off with a surface of living sphagnum moss.

On commencing to push up their new growths, provided they are strong enough to flower, the plants should be but sparingly watered; but when the flower spikes are visible, and are seen getting ahead of

the growth, water may be more freely given. Plants that show no flower spikes should be treated as the others are when in full growth. The proper time to repot *Chysis* is immediately after the plants have done flowering, or when new roots are seen pushing out from the base of the young growths. Grow the plants in a warm intermediate or *Cattleya* house temperature. Towards the completion of growth the plants should be removed to a light position in the plant stove or East Indian house, as the extra warmth will assist them to swell up the pseudobulbs. The young growths and flower buds of *Chysis* are liable to the ravages of thrips, but these insects may be easily kept down by the numerous chemical preparations now in use.—W. H. W. (in "Orchid Review.")

Odontoglossums and Leaf-mould.

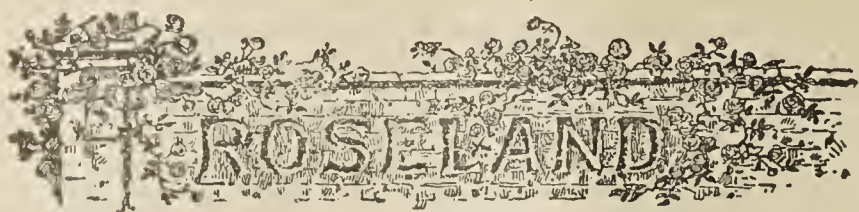
An interesting essay on "Odontoglossums and Leaf-mould Treatment" was given at the monthly meeting of the Sheffield Floral and Horticultural Society by Mr. J. Marsden, who gave valuable hints and mode of treatment gained by practical experience.

Certainly those who have seen the *Odontoglossums* at "Milnhurst" under Mr. Marsden's care, grown in leaf-mould, must admit the fine growths and the healthy appearance of them; and from the results obtained Mr. Marsden is convinced that they delight in a compost very largely composed of leaf-mould.

ONCIDIUM LEUCHOCHILUM.—This old favourite was admirably shown in two of the groups at the Drill Hall on Tuesday last. The flower spikes are long and arching, while the flowers are yellowish-green, with blotches of dark-brown, the lip pure white.

Odontoglossum, Prebendary Bevan.





How to Produce Good Liberty Roses.

(Essay read by A. Farenwald, of Hillside, Pa., before the Florists' Club of Philadelphia, March 1, 1904.)

In giving you my experiences in growing Liberties, I have omitted the growing of young plants from cuttings, as that is so well understood, and, besides, Liberty is one of the easiest propagated Roses in existence. I have divided my subject into seven different topics, namely—1st, soil; 2nd, planting; 3rd, watering; 4th, manuring; 5th, disbudding; 6th, cutting; 7th, temperature and ventilation, making them as plain as possible, in language and expression, using no high "trotting" sentences to bewilder myself and you. I hope that from these plain facts regarding the growing of this, one of our finest and grandest red Roses in trade, some of you will gather points which will enable you to solve the knotty question, "How to produce fine Liberty blooms?"

A good, suitable soil for Roses is one of the most important factors in Rose growing. If that is at hand, success is within easy reach of any careful grower. My soil is a heavy gravelly loam, with a good sod on top of it; before ploughing it down, I give it a good dressing (about 3in) of good cow manure. It is then ploughed over as deep as a two-horse plough can work it. After this it is kept cultivated for about a month, being then again ploughed and kept cultivated till used. This work is generally begun about the first week in April.

The soil being well prepared outside, I put in the young plants without adding any commercial fertilisers, as the cow manure is sufficient to begin with. I believe that those highly concentrated fertilisers force a plant too quickly to maturity, that is, to hard wood, which I do not want to be the case with the Liberty. Young plants I put in from 15in to 18in apart, preferring to plant from June 1 to the middle of July, which will give a good succession of crops. I have grown with equal success both in shallow and solid benches.

Watering.

The young plants will not need much water till about five to six weeks after planted, when they will commence to grow nicely, and will then take an abundance of water, even more so than any other Rose that has ever come under my care. If not kept well watered they will get yellow leaves, as the roots seem to have a tendency of spreading out near the surface, which makes them suffer at once if they happen to get too dry. The wood will commence to harden, and will be slow to break out anew. I syringe during the summer every day when clear. Towards the latter part of September I stop syringing too often overhead, as by that time most of the plants will have made plenty of top growth, and from that time on I try to induce breaks to come from the base, which I think too much syringing overhead will hinder, as it will keep eyes on the top growth continuously breaking into small growth, which is not desirable during the fall and winter, as I believe rather in quality of Roses than in quantity. I keep soil always in a moist, good growing condition, but never soaky. I use water direct out of a well which has an even temperature all through the season, about 52deg to 54deg.

I don't commence to top-dress till latter part of August and beginning of September. Then I put on a top-dressing of cow manure. I prefer to put this in little ridges between rows, covering it with soil to prevent the escape of ammonia as much as possible, and its getting washed off too quickly from the benches. Two to three weeks after this first mulch I have been in the habit of putting on a sprinkling of dried blood. This has to be done very carefully, as blood is very strong in ammonia, and apt to take off a big crop of leaves if put on too strong. I put it in small streaks on either side of a row, 2in to 3in wide, just thick enough to cover the ground, and also covering it with soil. From then on, and following this, every two or three weeks, according to the health and growing condition of the plant and the weather, I put on sheep manure, bone flour, wood ashes, and poudrette, either mixing these together in equal quantities or by themselves, but never at any time putting it on too heavy. I would rather do it a few times oftener, and not endanger the health of the plants. In March I put on another layer of cow manure, and by the time it is spent I use the fertilisers mentioned before till June, when it winds up the season. I have always used plenty of all sorts of manures, as I believe that a plant which has to work out of season, and receiving so many waterings, should have plenty of nourishment all the time, never giving it a chance to become dormant for want of proper nourishment.

Disbudding.

I consider that the pinching out process is the most important factor in the production of strong, vigorous plants, able to stand the strain of heavy cutting in the dark months of winter. We know that the formation of buds and flowers taxes the strength and vigour of the plant to the utmost. Therefore it naturally seeks a rest after this exertion. Some Roses will recover faster from it than others; Liberty is one of the slowest of these to recover. Ever since I commenced to grow Liberties I have followed the practice of carefully disbudding from the cutting on. After they are planted in benches a few months the production of buds will be quite plentiful. I then make it a practice to go over them every other day, pinching out the buds as soon as they can be gotten hold of, but taking no leaves with them, except on suckers, which I cut back three to four eyes, because, if pinched too close to the top they will break into very short-stemmed buds, which is undesirable on the stronger wood.

This continuous disbudding, which stops the sap from flowing to the buds and flowers, seems to irritate the dormant eyes at the base of the plant, and they finally break into fine canes, which will make grand flowers. In September and October, when plants begin to make longer-stemmed flowers, 10in to 18in long, which I do not care to have in bloom for another month, I cut them back three eyes to induce them to break strong again. If pinched too close to the top a short-stemmed flower will be the result. This practice enables us to have crops in succession. I continue this disbudding all through the winter, carefully taking off all buds up to 5in and 6in in length of stem, as flowers of that class are little thought of, and the benefit of the retarded sap and the saving of the foliage and wood will prolong its blooming capacity.

This may seem to many unnecessary; in fact, I know that many growers do not believe in it; but I hold that it is the most important point to successfully bloom Liberty in winter.

Cutting.

To cut right is a point I am particularly careful about. Nothing will spoil the successful blooming of Liberties as quickly as careless cutting. One should always remember that we want flowers all through the winter. To illustrate my point better: Take a plant with eight buds on, which would all come within a week or two. I would pinch three or four buds away, if this is in September or October, which would bring them in seven to eight weeks later. It will give four buds at a better price, besides not hurting the plants as much as if I had cut all those long-stem buds off at once, the plant would have received such a check as would take all winter to overcome. In other words, I do not want them to come all at once; avoid crops.

Plants put in benches by June 1, will, if they have done well, be fit to cut by beginning of October. They may have produced strong enough wood in August to tempt the grower to cut some blooms, but I find that if cut too soon they will not produce flowers in midwinter, nor will they throw up so strong canes from base later on. I consider that four months of growth is the least the plants should have before starting to cut, and even then I take nothing but the strongest wood, cutting everything up to 12in back.

Wood 10in to 12in long or longer in October should be cut back two or three eyes. If the bud is only pinched out, it would make an inferior bud at the next eye.

Strong wood—that is, canes from the base—should not be cut too low, as it is too hard and slow to break. It should have 12in to 15in of stem left, when it will break in reasonable time. In cutting the flowers, I am very careful to cut them right, that is, the outer petals expanded; of course, in the fall and spring I cut closer. I cut three, and even four, times a day, according to weather and demand, for they must be in as fine a shape when they reach the dealer as they can possibly be gotten. After they have been in water for about twenty-four hours in a cool place, they are fit to be shipped. If not well soaked, the long-stemmed Liberty, in particular, are easily wilted, and will be a disappointment to all concerned.

Temperature and Ventilation

In the early part of fall, when the growth of the plants is soft, I have always tried to maintain a temperature of 62deg to 64deg, with a little air on, if possible, at night, with a day temperature, on clear days, from 85deg to 90deg, while on cloudy days a temperature as near 70deg as possible. As soon as they commence to bloom I reduce these temperatures to 58deg and 60deg at night, and 75deg to 80deg during the day in fine weather, 68deg to 70deg on a cloudy day following a bright day, and if there is a succession of cloudy days, have it down to 65deg, as too high a temperature at night will spoil the colour. After the first planting of the young stock I use ventilation sparingly, gradually increasing as the plants take hold.

The Liberty is very sensitive to draught, not that it will show mildew by it, but it retards the growth. Plants will harden and stand for months before they get over such a check; therefore great care should be exercised on windy days, in a single house, and more so where the houses are built together.

with no partitions, where the draught will have a clean sweep underneath the gutters. I try to give air every day, even in the coldest weather, when I can only open the ventilators to their full height and shut them down again at once, as a change of air is always most desirable.

In finishing my remarks in regard to growing Liberty, I suppose some of you will be disappointed in not hearing some sensational statement almost bordering on a witchcraft way of growing; but, instead of that, you have heard nothing but plain everyday facts, which most of you know, ought to know, or have known. And last, but not least, success will lie only with that grower who is ever watching, who has his grip on the situation every day and all the time, never relaxing in enthusiasm in his fascinating and noble occupation, constantly studying the surrounding conditions which confront him with new varieties, higher standards in quality, and an ever-changing market.

Book Notice.

Systematic Pomology.*

This is a book of 285 pages, treating of the description, nomenclature, and classification of fruits, by F. A. Waugh, professor of horticulture and landscape gardening, Massachusetts Agricultural College, U.S.A.

In the opening chapter, pomology in general, the author introduces his subject as follows:—"Pomology is the science of fruits. The definition is sometimes made to read thus: 'Pomology is the knowledge of fruits,' or even as follows: 'Pomology is the study of fruits.' But study must result in knowledge if it have any result at all, and knowledge must be classified if it have any purpose or use, and classified knowledge is science. Therefore, when we study fruits in any way so as to get some knowledge of them we have the materials of pomology, and whenever we classify the knowledge gained by our study we have the science of pomology.

"The science of pomology separates naturally into two subdivisions, viz., *systematic pomology* and *practical pomology*. The former deals with our knowledge of the fruits themselves, and the trees, bushes, or vines on which they grow—the latter deals with our knowledge of the practice of fruit growing. This classification does not assume that practical pomology is more 'practical,' in the vulgar usage of that adjective, than systematic pomology. Practical pomology is practical simply because it deals with the 'practice' of growing fruits without concerning itself about the history, character, names, or classification of the fruits themselves.

"The modern evolution of business has made the natural subdivision of pomology into two branches somewhat inadequate to the circumstances, especially in North America. Fruit growers have found more and more that the fullest knowledge of the fruits themselves, combined with utmost proficiency in the practice of fruit growing, was insufficient to their needs. To these they have been compelled to add an extensive and complicated knowledge of fruit marketing. This makes a third department of pomological science. This knowledge of how to market fruit may properly be called *commercial pomology*.

"These three branches are very intimately related. In order to grow fruit successfully one ought to know all the characters and relationships of the varieties which he cultivates. In order to sell at a profit it is always necessary, first, to have it well grown and correctly named.

"Yet the three branches are easily separated. It is no uncommon thing to find a man who knows at a glance all the leading varieties of Apples or Plums, with their correct names, and who is yet not capable of growing any of the varieties successfully. That man would be a good systematic pomologist, but a poor practical one. The next man may be able to grow the finest grades of fruit, and yet be unable to market it at a profit. Such a man would be strong on practical pomology, but weak on the commercial side."

How true is the foregoing applied to British pomology, a word meaning literally the science of fruits, and in itself a mongrel, being a combination of the Latin word *pomum* (fruit) and the Greek word *logos* (discourse, treatise, or science). The science of fruits is well set forth in Dr. Hogg's "Fruit Manual," and the practice of growing fruits in the "Fruit Grower's Guide," and many other works, but the marketing of fruits is practically a nonentity as regards the commercial side, and confined to market growers and salesmen. True, there is the Worshipful Company of Fruiterers' Gold Medal Essay by Mr. R. Lewis Castle on "Packing and Selling Fruit and Vegetables," and many other articles in other gardening works on the subject, but for all, the home-grown fruits are marketed in such ungraded samples by many growers as to disgust sales-

men, and place the products at a disadvantage in competition with imported. Besides, practical pomology hardly obtains in the generality of cottage and farm gardens, so that the strength of British pomology is more exemplified in books than in the garden, plantation, and orchard, least of all in the marketing.

"More really scientific work is being done now in the study of fruits than was ever done before in this country, and more persons are interested in knowing the best methods for the study of systematic pomology," says our author, and it is certain that interest in the British Islands should not be less than obtains in the United States and other countries that export fruits, and more or less affect home-grown.

Systematic pomology, according to Professor F. A. Waugh, is found to comprise three distinct subjects: (1) description,



Corylopsis pauciflora. (See page 386.)

(2) nomenclature, and (3) classification. On the first the author notes the importance of not relying on memory, but of fully writing out the description, and gives a blank descriptive form under the heads of variety: habit of growth, height of plant, length of fruit-stalks, colour of foliage. Fruit: how produced, form, colour, dimensions, seeds. Flesh: colour, texture, quality.

Such records afford an excellent guide and ready reference, especially as there are blank spaces for inserting such particulars in respect of habit, as upright, spreading, open, close-headed, round-topped, or irregular. Or of productivity, as prolific, coming early into bearing, very light and late cropping, bearing abundantly in alternate years; or of hardiness and degree of subject to disease, recording degree of both, not omitting vigour of tree, colour of bark or young wood. Foliage as a whole:—Abundant, sparse, healthy, dark green, or some other colour, subject to disease or marked by other characteristic, even the individual leaf being given critical attention as regards surface, such as smooth, rough, rugose, tomentose, lanate, woolly, hairy—glandless or with glands—orbicular or reniform.

These data are to be supplemented by general notes in respect of peculiarities of soil and location, which may have influenced the specimens; facts with regard to the storage of the specimens; notes on insect or fungus injuries; general

* Orange Judd Company, 52, Lafayette Place, New York. Price, postpaid, 1 dollar.

remarks on the value or uses of the variety; notes with respect to its origin, introduction, or history.

These matters will give some idea as to the scope of the work and the thoroughness induced in respect of every fruit described, each description being authenticated by the name of the describer and that of the grower, together with the location of production. Such details mean a system, no haphazard work, and to clench everything a good drawing or photograph of the specimen made, even water-colour paintings; and models in plaster of Paris or wax being regarded as improvements, and with a good written description form a complete record.

The book is replete with illustrations elucidative of the several forms on which the classification is based, and treats of Apples or Pome fruits, Plums or Drupe fruits, of Strawberries, Raspberries, and Blackberries, Currants, and Gooseberries, and Grapes, in a very concise manner.

Under the head of "Classification of Fruits in General," Prof. Waugh alludes to the difficulty of defining a fruit in exact terms, that of the botanist and the horticulturist not being just the same, the latter's notion being that a "fruit is an edible, more or less fleshy portion of a plant, in its development intimately connected with the seed. Sometimes it is the seed itself, as in the Walnut; sometimes it is the swollen ovary, as in the Plum; sometimes it is the fleshy calyx adhering to the ovary, as in the Apple." Reference is also made to the difficulty of classifying hybrids, as clearly the resultant fruits may be called by either name of the parents.

"Recently," he says, "the Plum has been successfully hybridised with the Apricot and with the Cherry. The resultant fruit is half Plum and half Apricot, and cannot be conveniently classed with either. Mr. Burbank has called it a plumcot. The cross between the Plum and Cherry has not been named."

Prof. Waugh also says he "has several times seen fruits which were thought to be hybrids between the Apple and the Pear. They partook of the characters of both fruits. Whether such specimens could be called Pears or Apples would be a knotty question. About the best thing that can be done is to rely on the arbitrary definitions of our common language."

In the general classification, Prof. Waugh adheres to that given in Bailey's "Principles of Fruit Growing."

CLASS I.—Tree fruits. Sub-class 1: Pomaceous fruits, which include Crabs, Apples, Pears, Quinces, Medlars, and Loquat. Sub-class 2.—Drupaceous or stone fruits, embracing Cherry, Plum, Apricot, Peach, and Nectarine.

Sub-class 3.—Citrus fruits, including the Orange, Lime, and Lemon. Sub-class 4.—Moraceous fruits, comprising the Fig and Mulberry. Class 5.—Anonaceous fruits, containing the Cherimoya, Sour-apple, and northern Papaw.

Sub-class 6.—Myrtaceous fruits, embracing Guava and the Eugénias. Sub-class 7.—Sapotaceous fruits, such as the Star-apple and others. Sub-class 8.—Anacardiaceous fruits, as the Mango.

Sub-class 9.—Ebenaceous fruits, Kaki and Persimmon. Sub-class 10.—Leguminous fruits, Tamarind and Carob. Sub-class 11.—Nut fruits, Walnuts, Chestnut, Filbert, Almond, &c. Sub-class 12.—Palmaceous fruits, as the Cocoa-nut and Date. Sub-class 13.—Miscellaneous tree fruits, including the Olive, Pomegranate, Alligator Pear, Strawberry tree, &c.

CLASS II.—Vine fruit. Sub-class 1, Viticulture, comprising the Grapes. Sub-class 2, Passifloraceous fruits, such as the Granadilla.

CLASS III.—Small fruit. Sub-class 1, Bush fruits. Group a, Rubaceous fruits—Raspberry, Blackberry, and Dewberry. Group b, Ribaceous fruits—Currants and Gooseberries. Group c, Miscellaneous bush fruits—Juneberry and Buffalo-berry. Sub-class 2, Strawberry—Garden, Hautbois, and Alpine. Sub-class 3, Cranberry—Common Cranberry.

CLASS IV.—Non-woody or Herb-like fruits. Sub-class 1, Musaceous fruits—Banana and Plantain. Sub-class 2, Pine-apple—Common Pineapple. Sub-class 3, Cactaceous fruits—Prickly Pear, Indian Fig, Barbadoes Gooseberry. Sub-class 4, Miscellaneous herb-like fruits—the Ceriman (Monstera deliciosa).

After the general classification follow chapters on the classification of Apples, divided into fifteen classes; on Pears, also consisting of fifteen classes; on Peaches, on Plums and Damsons, on Cherries, and miscellaneous fruits. There is also a chapter on the "Relation to the practice of fruit growing," in which Prof. Waugh says, "Aside from the executive ability of the fruit grower himself, no other one factor has a greater influence on the success of the business of fruit growing than the selection of varieties. The improvement of our horticulture depends, first of all, on the introduction of better fruits, on their effective dissemination, and on the adaptation of particular varieties to special soils, climates, markets and personal needs."

"There are men, of course, who grow Apples successfully, and who sell them at a profit, without knowing any other variety than Ben Davis or Baldwin. But you, my amiable reader, are not that kind of man. Ignorance is no part of

your capital; for your success is conditional on knowledge. The better you understand your business the better it will pay. Also, the better you understand it the more you will enjoy it."

"Both these things are important. Fruit growing must pay some dividend in the first place, and in the second place, you must take some interest, some pride, and some pleasure in it."

How true is this of British pomology; and I entirely endorse the professor's dictum. "Now, the man who enjoys fruit growing, and expects to make a success of it, must study varieties. He ought to study them thoroughly and systematically." And the study of varieties of fruits is systematic pomology, and its elucidation by Prof. Waugh I heartily commend to readers of the *Journal of Horticulture*, the work containing chapters "for the teachers and student," on "laboratory work," and on "judging fruits," with, not least, a glossary of terms.—G. ABBEY.

Old-time Gardening.

(Continued from page 256.)

Plants Introduced in Seventeenth Century.

ABRUS PRECATORIUS (GLYCINE ABRUS).—Introduced from West Indies in 1680. On account of the leaves possessing a flavour of liquorice, it was known as Wild Liquorice. Its specific name is derived from the berries having been used as rosaries, and they were sold also as Jumble Beads. In India the seeds are used as weights, called 'rati,' whence it is said Carat is derived. Lately the plant has been brought into prominence by Professor Nowack as a weather plant.

ACANTHUS SPINOSISSIMUS.—Johnstone states having seen this plant in Parkinson's private garden.

ACER PLATANOIDES (THE NORWAY MAPLE).—First mentioned in 1683. For long a rare tree. It is remarkable for the beauty of its tender greenish yellow foliage and flowers in early summer, and has lately been recommended as a forest tree by Mr. Simpson ("The New Forestry"). Cut and variegated-leaved forms are also cultivated.

ACER RUBRUM.—Seeds of this tree were introduced by Tradescant from America; hence called Virginia, and on account of its red flowers, Red Maple.

ACHILLEA ÆGYPTICA, 1640.—Still cultivated in borders. A. CLARENNE 1656: An indispensable rockery plant. A. HERBA-ROTA, 1640: Like some others, the leaves of this species when bruised are fragrant. A. NOBILIS, 1640; called Sweet Sneezewort, the bruised foliage emitting a sweet scent. A. SERRATA, 1686: Dwarf and pretty species, still cultivated.

ACIS AUTUMNALIS (LEUCOJUM AUTUMNALE), 1629.—The best of the genus; figured by Parkinson.

ACTINOMERIS QUARROSA, 1640.—A common American weed, met with long ago as Chrysanthemum virginicum; Coreopsis alternifolius, and Verbesina Coreopsis are later synonyms.

ADENOCARPUS (CYTISUS) FOLIOLOSUS, 1629.

ADIANTUM PEDATUM, 1640.—The well known hardy Canadian Maidenhair, A. reniforme, 1699.

ADONIS ÆSTIVALIS, 1629.—At one time a popular garden plant, the yellow form being that commonly cultivated. It is sometimes, but erroneously, called Pheasant's-eye.

A. VERNALIS.—Botanists give date of introduction as 1629, but as it is included in Gerarde's Herbal and Catalogue, and also by Lyte ("Niewwe Herball, 1578), who says, "In this country the herboristes do plant it in their gardens," the plant is really a sixteenth century introduction. Lyte called it "Oxe-eye," and Gerarde also, while Parkinson thought it was a kind of yellow Anemone.

ÆRUA (CELOSIA) LANATA, 1691.—A "weed."

ÆSCULUS HIPPOCASTANUM, 1629.—First cultivated by Tradescant in his garden at South Lambeth.

AGAPANTHUS UMBELLATUS, 1692; the well-known African Lily.—In its earlier days in this country it masqueraded under such designations as Crinum africanum, Hyacinthus africanus tuberosus, and Asphodel Lily.

AGAVE AMERICANA and A. A. VARIEGATA, 1640.—Usually described as Aloe americana, and still retains the name of American Aloe.

AGRIMONIA ODORATA, 1640.—The leaves are fragrant. Long ago they were infused and the tea given to persons in fever. Till quite a recent period Agrimony tea was used as a febrifuge in the Border districts, common Agrimony being substituted.

AJUGA GENEVENSIS, 1656.—This still indispensable plant was usually called Bugula genevensis. Allium fistulosum, 1629. Althæa acaulis, 1680.

AMARYLLIS (SPREKELIA) FORMOSISSIMA, 1658.—This brilliant bulbous flower had been a long time in cultivation ere it obtained a name conformable to its appearance. Some of its earlier designations are: Narcissus indicus, N. i. ruber, N. i. Jacobæa, and Lilio-Narcissus Jacobæa; everyday names being Indian Narcissus and Indian Lily. How it came to be called the Jacobæa Lily is said by an old writer to have been on account of the flowers resembling the "pictured swords on habits of the Jacobæan Knights."

AMPELOPSIS HEDERACEA was first described by Parkinson as "Vitis, seu potius Hedera Virginicus, the Virginian Vine, or rather Ivie," the former having been its earlier name. In 1629 it was a plant well known, and has never lost its popularity.

AMYGDALIS NANA, 1683.—*A. pumila*, 1683 (*Cerasus japonicus* multiplex). This still valuable dwarf tree was first cultivated in Bishop Compton's famed garden at Lambeth.

ANACARDIUM OCCIDENTALE, 1699.—The Cashew-nut (Acajou). The "Tatler," No. 245, contains a note of a box "for Cashu and Caraway comfits to be taken at long sermons"!

ANAGALLIS MONELLA, 1648.—A very popular flower cultivated as *A. lusitanica* and *Anagallis* of Portugal.

ANANAS SATIVA, 1690.—First described by Johnston in 1633, from Clusius. Evelyn mentions Cromwell having had fruit sent him in 1657, the first seen in England; and that he himself had a slice of Pine-apple given him by Charles II. in 1668. It was of "a grateful acidity, but tastes more like the Quince and Melon"! The plant does not appear to have been cultivated successfully till 1715, when Telende, gardener to Sir M. Decker, fruited it in tan-heated frames, the fruits averaging 4 inches in length.

ANARRHINUM BELLIDIFOLIUM, 1629, "the sweet purple tode flax."

ANCHUSA ANGUSTIFOLIA and *A. LEPTIPHYLLA*, 1640.

ANEMONE ALPINA, 1658. *A. A. SULPHUREA* is the best form in cultivation.

A. CORONARIA and *A. HORTENSIS* were largely cultivated, and long previous to the end of the century there were large collections of named varieties, both in singles and doubles.

ANODONTEA (ALYSSUM) SPINOSA, 1683.

ANONA MURICATA, 1656, the Sour-sop. *A. RETICULATA*, 1690, the Custard-apple.

ANTHOSPERMUM ÆTHIOPICUM, 1692, the Amber Tree; originally called *Frutex africanus*, or African Shrub. "Æthiopicum," it may be explained, was usually applied to African plants without at all having regard to what part of that continent they might have been derived.

ANTHYLLIS BARBA-JOVIS, 1640, not uncommonly called Silver Bush. *A. TETRAPHYLLA*.

ANTIGRAMMA (now SCOLOPENDRIUM) RHIZOPHYLLA, 1680, a fern from Canada of no beauty.

ANTIRRHINUM ASARINA, 1699.

APIOS TUBEROSA, 1640, this is an exceedingly graceful hardy plant, known to gardeners at one time as "Twickenham Climber." It has had many names—e.g., *GLYCINE APIOS*, *APIOS AMERICANA*, and *ASTRAGALUS*.

APOCYNUM ANDROSÆMIFOLIUM, 1680. The American Dog-bane is an old garden favourite. *A. CANNABINUM*, 1699, employed by American Indians as a kind of hemp. *A. VENETUM*, 1690.

AQUILEGIA CANADENSIS, 1640, a well-known species.

ARABIS NUTANS, 1656.

ASCLEPIAS CARUSSAVICA, 1692; known as Bastard Ipecacuanha, its roots having been imported instead of the true. Its scarlet inflorescence procured it the name of Red-head among gardeners. *A. SYRIACA*, 1629; the common Silk-weed, or Syrian Dog-bane. *A. TUBEROSUM*, 1680; orange Apocynum, but better known in old gardens as the Butterfly-weed. These and the Apocyna were extensively cultivated.

ARISÆMA TRIPHYLLA, 1664, a hooded, spathed Arum of no beauty.

ASPARAGUS ACUTIFOLIUS, 1640. *A. APHYLLUS*, 1640. *A. CAPENSIS*, 1691.

ASPLENIUM (ANTIGRAMMA) RHIZOPHYLLUM.

ASTELMA (HELIPTERUM) SPECIOSISSIMUM, 1691; Eternal Flower; very generally cultivated 200 years ago by the name of *Xeranthemum speciosissimum*.

ASTER ALPINUS, 1658; *A. HUMILIS*, 1689; *A. LINARIFOLIUS*, 1699; *A. PANICULATUS*, 1640; *A. SOLIDAGINOIDES*, 1699; *A. TRADESCANTI*, cultivated by Tradescant and Parkinson by the name of *A. virginianum fruticosus* or Shrubby Starwort previous to 1629, afterwards became well-known as Michaelmas Daisy. *A. UNDULATUS*, 1699.

ASTEROCEPHALUS AFRICANUS, 1690, formerly cultivated as *Scabiosa frutescens* or Shrubby Scabious. *A. ATRO-PURPUREUS*, 1629, but cultivated anterior to that date; called the Red Indian Scabious, and, later, the Mournful Widow, and, as now, simply Scabious or Sweet Scabious. *A. GRAMINIFOLIUS*, 1683. *A. PROLIFER*, 1683.

ASTRAGALUS AUSTRIACA, 1640; *A. CAPRINUS*, 1683; *A. HAMOSUS*, 1683; *A. ONOBRYCHIS*, 1640; *A. POTERIUM*, 1640; *A. SESAMUS*, 1616; *A. STELLA*, 1658; *A. TRAGACANTHA*, 1640, for long supposed to be the plant whence Gum Tragacanth was derived.

ASTRANTIA MINOR, 1686.—Thought by old writers to be a form of *Helleborus niger*.

BACCHARIS HALIMIFOLIA, 1683.—Ray called this plant *Senecio virginianus arborescens*, and it was long grown in nurseries and in gardens by the name of Groundsel Tree.

BACTRIS BACALIFERA MINOR (*B. ROTUNDA*, *Cocos guienensis*), 1681.—Used to be called Prickly Pole. The young stems, which were covered with prickles, having been used for walking-sticks.

BASELLA ALBA, 1688.—The Malabar Nightshade.

BAUHINIA VARIEGATA, 1690.—The specific name refers to the floral markings, white stripes on purple. Miller records its common name as Mountain Ebony.

BERINGERIA ACETABULOSA, 1676.

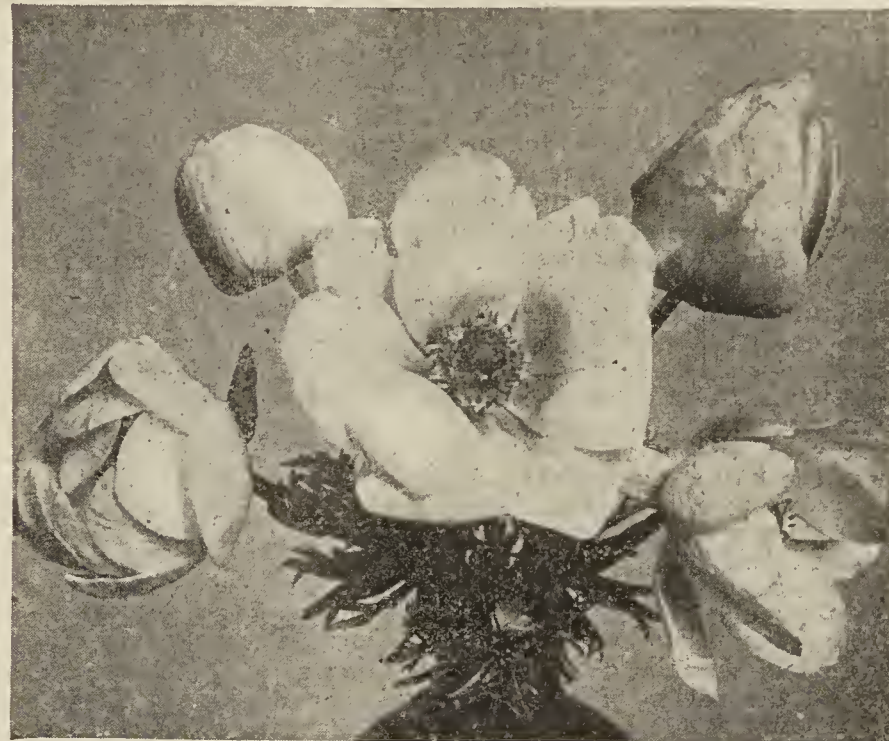
BERTEROA INCANA (*FARSETIA INCANA*), 1640.—The hoary Alyssum—*Alyssum incanum*.

BIDENS BIPINNATA, 1687.

BISCUTELLA AURICULATA, 1683.

BISERULA PELECINUS (*PELECINUS VULGARIS*), 1640.—Bastard Hatchet Vetch.

BIXA ORELLANA, 1690.—The Anotta Plant. Used by American Aborigines as a war paint, the colouring matter surrounding the seeds in the form of a paste.



Anemone coronaria (reduced).

BLECHNUM AUSTRALE, 1691: A Cape Fern. BLITUM VIRGATUM, 1680.

BORHAVIA DIFFUSA, 1690.

BOMBAX CEIBA, 1692.—The generic name is from the cotton-like material which envelopes the seeds, hence called Silk Cotton-tree. It is one of the tallest of South American trees, and supposed to be the "Ceiba," seen as a boat by Columbus near Cuba, and capable of holding 150 men.

BRIGNOLIA PANACIFOLIA, 1685.—The old Sium siculum, or Parsley-leaved Myrrh.

BRIZA MAXIMA, 1633.—This was not in general cultivation at the above date, and, if we are to credit Miller, was scarcely known a hundred years later. Its English names are numerous—e.g., Lovely Grass and Fern Grass.

BROMELIA PINGVIN, 1690; The Pinguin.

BROTERA CORYMBOSA, 1640.

BULBOCODIUM VERNUM, 1629.—Figured in the "Paradisus" as *Colchicum vernum*.

BUPHTHALMUM ARBORESCENS, 1699.—Bobart named this plant *Chrysanthemum bermudense*.

BUPHTHALMUM FRUTESCENS, 1696.—One of Bishop Compton's introductions, and named originally *Chrysanthemum fruticosum maritimum*.

B. MARITIMUM, 1640.

BURSERA GUMMIFERA, 1690; the Jamaica Birch Tree.—B.

Anemone coronaria or Poppy Anemone.

This important species has given rise to many single and double florists' varieties, which grace our gardens at this time of the year. The flowers of *A. coronaria* vary considerably in colour, some being red or purple, or pinkish, and some even white. A dwarf and close grower, vigorous and free, at least when planted in a suitable place, the varieties of the Poppy Anemone are useful for edging beds with, or for massing in borders. Both in singles and doubles there are handsome named varieties, Rose de Nice and Fire King being typical of the doubles, and the St. Brigid's may be named as semi-doubles. Any well-drained loamy soil suits the Anemone. Messrs. Barr and Sons recommend that "the spring plantings for summer and autumn flowering should be in a situation where the ground is moist, and shaded from the sun's rays after 10 or 11 a.m., and well sheltered from cutting ground winds."



Louis Gauthier Strawberry.

In reference to your notes of last week, I have forced this very fine pink Strawberry, and it sets very freely, and produces enormous berries, which, under this culture (as in the open) are of exceptionally fine flavour, melting in texture, and beautiful in appearance.—GEORGE BUNYARD.

Ripened Wood.

Your correspondent's bold refutation on page 355 of the only possible crutch a gardener has to depend upon, though serious enough, calls for admiration. Yet, though I personally admire the courage of "G. H. H.," I cannot agree with the heresy. I have quite satisfied myself time and again that well ripened wood is not only a desirable precursor of fruit, but is an absolute necessity. In no class of fruit trees is this more apparent than in outside-grown Peach trees. I have often observed the unripened, green, willow-like branches blossom profusely, but alas! the bloom only fell to the ground. And should a solitary fruit elect to remain, I noticed it always was at the lowest, and necessarily most matured part of the twig. From this I always inferred two things, viz., (a) that unripened wood, for some physiological reason, will not, or cannot, bear fruit; (b) that it is not essential for the wood to be ripe to produce a display of blossom.

So far, then, as the matter concerns myself, it has passed beyond the region of mere speculation, and presents itself as a necessary fact. I grant there are difficulties attached to the matter, but they are possibly of a circumstantial nature and open to explanation, but in the main the theory is absolute. For instance, an unduly wet harvest has not always resulted in a fruitless crop the ensuing season; some occult qualities were involved in the conditions that matured the wood. Soils, too, especially of a light, gravelly nature, may be benefited by a wet autumn, and very often in such case a wet season is the salvation of the crop. There can be no doubt whatever about the bad effects of a wet autumn on the ensuing year's crops in soils of a cold, marly, or clayey character.—D. CHISHOLM.

Cyaniding on an Established Basis.

Considering the great value attached to the use of "cyanide," or hydrocyanic acid gas, in the United States for the destruction of insect pests on fruit trees in the open air, it seems scarcely conceivable that the practice should have remained for so long more or less a mystery rather than a true friend to the growers of this country. Vague recommendations have been set forth from time to time as to the strength and materials to be used. But in many cases the results which followed were as destructive to plant life as to the insects themselves, while in other cases both escaped uninjured. This clearly demonstrated the want of true knowledge regarding the properties and uses of hydrocyanic acid gas as a fumigant in this country. The conditions prevailing here are totally different to those abroad, and it was recognised that to be successful it must be adapted to meet our requirements. With a view to arriving at these requirements, and placing the operation of "cyaniding" from an experimental to an established basis, a series of tests were carried out at the gardens of the Royal Botanic Society. One large range, 150ft long, 20ft wide, and 13ft high, was successfully done, and followed by a smaller one. In these ranges plants infested with mealy bugs, thrips, red spider, scale, green fly, &c., were collected, and in the short space of two hours from start to finish all above pests were completely destroyed without injury to plant life. The preparations consisted of arranging all ventilators, doors, &c., to open from the outside, and safely fastening the same to prevent any person entering during the operation.

The amount of cubic air space having been previously calculated, and 1,000 feet adopted as a unit, the proper proportions of cyanide and sulphuric acid required were to hand ready for use. Shallow earthenware pans were adopted as generators, and into these the required volume of water and sulphuric acid were placed respectively. Boards about 11in wide and 5ft long were hung over each generator for the purpose of evenly distributing the gas, and are worked by attached cords from exterior of house during generation. The cyanide is then arranged in a shallow tin, with a special tipping arrangement attached to the air fan. After carefully placing the cyanide tins in proper

position, beginning at farthest end of house and finishing near door, the operator leaves the structure and makes the door fast. The fans are then started, the cyanide tipped, and gas rapidly generated. The air fan should be worked for a period not exceeding ten minutes, and five is oftentimes sufficient. The time of commencing to generate gas is noted, and the period of exposure commences. This varies according to the temperature, atmospheric moisture, nature and condition of plants, and pests to be destroyed. At the expiration of this period the ventilators and doors may be opened and fully cleared from gas before any person is allowed to enter. No person must either remain in the building after mixing the cyanide and acid, or enter until quite clear. Materials of standard quality should be used, and the English method of using "sodium cyanide" in place of potassium cyanide should be adopted. Better results are obtained by doing this, and the cyanide is of an even quality and a more concentrated form. This is known as the "Strawson sodium cyanide process," invented by Mr. G. F. Strawson, who, in conjunction with Mr. W. F. Emptage and myself, carried out and recorded the experiments. Other tests, carried out in Messrs. Ladds' nurseries at Swanley, in Scotland, and elsewhere on the above lines thoroughly endorse our opinion as to the value of "cyaniding" when carefully carried out.—ELDERBERT F. HAWES, Royal Botanic Gardens, Regent's Park, N.W.

Appeal for the Royal Gardeners' Orphan Fund.

The following letter has been sent to us from Sir Trevor Lawrence, Bart.:—"I have gladly consented to take the chair at the annual dinner of the Royal Gardeners' Orphan Fund, on May 17, and venture to ask for your support on the occasion. The year 1904 is one of special interest to all who love a garden; and in this land of gardens who does not? It is the centenary of the great garden society, the Royal Horticultural, which has done yeoman's service in popularising the art and science of gardening. But what would be the value of this art and science were it not for the ceaseless labours and unrivalled skill of our gardeners? It is upon them that the real burden and responsibility rest. Want of skill or knowledge, or even a slight relaxation of attention, vigilance, and care, may frustrate at any time the best directed efforts and most generous expenditure. Can we show appreciation of our gardeners' labours and our recognition of a success which adds so much to our pleasures, in any better way than by succouring their orphan children? There are now ninety-eight children on this fund, each receiving 5s. a week, and many candidates waiting election. At least £1,250 will be required for the current year. May I ask you, as a lover of gardens, to help in the good work of this fund?"

Potato Notes.

The boom in Potatoes has undoubtedly done good in many ways, and among other things it has shown what wonders can be accomplished with a pound of tubers in the hands of an expert propagator. The pessimists are, however, on the war-path, predicting dismal failure and rapid deterioration in the stamina of popular varieties through over-propagation. Similar predictions have been advanced—and falsified—in connection with hosts of new things during the last thirty years. Perhaps one reason why the prophets wail so lamentably is that they overlook the fact that intensive propagation only goes on for a year or two, as by that time a sufficient stock is usually obtained to admit of ordinary methods being adopted.

In regard to the Potato, however, it is an open question whether or not intensive propagation, if followed year after year, would bring about deterioration, because if a strong plant, with abundance of active fibrous roots, is planted in well prepared soil in May, what is likely to prevent it from producing a normal crop by the end of the season? Certainly under such conditions tubers large enough for seed would be produced, and if they are sound and healthy where does the deterioration come in? The boom is also teaching a valuable lesson as to what can be done by thoroughly working the soil. Many enthusiastic Potato growers find great pleasure in defending the reputations of their favourite varieties, and will not have them easily dethroned in regard to their cropping capabilities. They inquire into the methods adopted to produce the huge crops mentioned in connection with some modern varieties, and believe in their hearts that some of their old favourites would do equally well under similar treatment.

A resolve is straightway made that one of the modern wonders shall be tested beside an old favourite, and that no pains shall be spared to outdo previous records. That is the spirit which makes for improvement in any walk of life, and it is the spirit which just at the present time permeates the Potato world. I know of instances in which the special plot for Potatoes has already been dug four times, and if at the end of the season an old variety, under such favourable treatment, shall be found equal to the best of any known, will it not show too, what vastly improved results may be accomplished with all varieties when high cultural methods are adopted?—H.

NOTES

NOTICES

Temple Flower Show.

The Royal Horticultural Society will hold its seventeenth great annual Flower Show in the Inner Temple Gardens, London, E.C. (by the kind permission of the treasurer and benchers), on May 31, June 1 and 2, 1904. * * Intending exhibitors can obtain a schedule, with entry form, &c., on application to the Secretary, R.H.S., 117, Victoria Street, Westminster. A penny stamp should be enclosed to cover postage.

A Floral Map of the U.S.A.

A floral map of the United States will be exhibited by the U.S. Bureau of Plant Industry at the St. Louis Exhibition. It will cover six acres of a sloping hill, and every State will be outlined by a cinder path. Plants grown in the different States will be represented in the map either out of doors or under glass. A school of gardening will be held beside it, and there will also be a model school garden provided by the Government. School gardens are becoming popular in the States.

Professional Gardeners' Association.

A circular letter to plead the objects of the Gardeners' Association has been prepared, and this we reprint. Accompanying the "plea," the hon. secretary, Mr. W. Watson, sends out the following letter:—"You are no doubt aware that an effort is being made to form an association of gardeners. I feel sure you will assist, and I therefore send you copies of a 'plea' for distribution among your gardener friends. We are anxious to get a copy of this pamphlet into the hands of every gardener in the country, in the hope that it will induce him to take an active part in making the association a success."

Agricultural Co-operation.

We are informed that the negotiations which have been proceeding for some time between the Agricultural Organisation Society and the Co-operative Banks Association, both associations having as president Mr. R. A. Yerburch, M.P., have resulted in an amalgamation of the two bodies. Under this arrangement, the Country Co-operative Credit Societies formed by, and affiliated with, the Co-operative Banks Association will be transferred to the Agricultural Organisation Society, and a special sub-committee elected to systematically organise co-operative credit throughout the rural districts. Mr. Henry C. Devine, who has been secretary of the Co-operative Banks Association from its commencement, has been appointed assistant secretary of the Agricultural Organisation Society.

Presentation to Mr. H. Kitley.

The annual meeting of the Bristol and District Gardeners' Mutual Improvement Association was rendered additionally interesting by the fact that advantage was taken of the occasion to make a small presentation to the assistant hon. secretary, Mr. H. Kitley. This took the form of an aneroid barometer, suitably inscribed, and a Swan fountain pen. Mr. Poole, the retiring chairman, in making the presentation, spoke of the untiring energy of Mr. Kitley, who during his time of office had in every way possible sought to increase the usefulness of the society. The members appreciated the unstinting service he continually rendered, and asked him to accept the gift as a small token of their regard and gratitude. Mr. Kitley received a warm welcome on rising to respond. He confessed himself unable to adequately express what he felt, but sincerely thanked them for the beautiful gifts and the kindly feeling which had prompted them. The work he had done had always been a pleasure, because he felt that the society was filling a need amongst the gardeners of the district in a way that could not be done otherwise. He hoped for a long connection with it, and felt sure that, with the continued co-operation of the members, even more success could be accomplished in the future than in the past, and, speaking for himself, he was always anxious to do what he possibly could to make that success sure.

Sheffield Gardeners to Visit York Gala.

We understand that the secretary of the Sheffield Floral and Horticultural Society, is arranging for a party to visit the great York Gala on the first day of the show, and that tickets for rail and admission will be supplied at a special reduced rate to members or friends.

The Dusseldorf Exhibition.

We learn that this huge German horticultural exhibition, which opened last week and extends for some time, is a huge success, tens of thousands of visitors having inspected the show on the opening and following days. The few English visitors who were there in an official capacity, were high in their praises of the generosity of the authorities who had the show in charge.

Royal Gardeners' Orphan Fund.

The sixteenth annual dinner of the Royal Gardeners' Orphan Fund will take place in the Hotel Cecil, Strand, W.C., on Tuesday, May 17, under the presidency of Sir Trevor Lawrence, Bart, K.C.V.O. Mr. Brian Wynne, the secretary, whose address is 30, Wellington Street, Covent Garden, London, would be pleased to hear from anyone desirous of being present in support of the president of the Royal Horticultural Society, who occupies the chair.

Narcissus, Elaine.

Messrs. Dicksons, Ltd., of Chester, write as follows:—"We take the liberty of sending for your inspection a few blooms of the beautiful new variety of Narcissus Leedsi, Elaine, which we purpose distributing this autumn at £2 2s. each. As you are no doubt aware, this was raised by the Rev. G. H. Engleheart, and received a first class certificate from the Royal Horticultural Society on May 7th, 1901." [Elaine is a very graceful flower, with pale primrose chalice and much paler perianth.—Ed.]

School Teachers' Examination in Cottage and Allotment Gardening.

The Royal Horticultural Society will hold an examination in cottage gardening on Tuesday, June 21, 1904. This examination is intended for, and will be confined to, elementary school teachers. It has been undertaken in view of the increasing demand in country districts that the schoolmaster shall be competent to teach the elements of cottage gardening, and the existing absence of any test whatever of such competence. The general conduct of this examination will be on similar lines to that of the more general examination. A copy of the syllabus, with full particulars, may be obtained by sending a stamped and directed envelope to the Secretary, R.H.S., 117, Victoria Street, Westminster.

The Southern Counties' Carnation Show.

The Southern Counties Carnation Show, which is now included in the operations of the Southampton R.H.S., is to be held on July 22. An excellent schedule of prizes has been issued, containing thirty-two classes for Carnations and Picotees, including nine for vases of undressed flowers. The classification has been improved, and the greater encouragement given for undressed flowers is a step in the right direction. There are also some classes for Sweet Peas and border flowers. We are glad to hear through the secretary, Mr. C. S. Fudge, that nearly £90 have been promised in subscriptions, donations, and special prizes, so that there is a good prospect of a financial success this season. We are also pleased to notice that Mr. W. Garton, jun., is still taking an active interest in the show, and presides over the special committee.

Broccoli from Cornwall.

Considerable quantities of Broccoli continue to be sent from Marazion and other West Cornwall stations, but next week will see the greater part of the fields cleared. Prices are still ruling very low for ordinary packed heads, but selected first class Broccoli will command fair prices still. The demand is not equal to the supply, owing to Broccoli from Kent coming into the markets, as well as Cabbages in large quantities from Worcestershire. The prospect for Cornish Cabbages is, therefore, not at all good, and they are freely offered at Marazion Station at a low figure. The weather in West Cornwall is fine, but cold winds are prevailing, happily without frost, and the early Potato crop up to the present remains unhurt, and is looking well, the haulm covering the ground in the more favoured spots. Owing to the dry winds, grass is backward in growth.



Croton, Lady Zetland.

This narrow-leaved Croton (or Codiaëum) is well known to be one of the best for decorative uses. The habit is bushy, and the growth is free, the colour of the leaves being orange-red.

Thalictrum anemonoides.

This is distinctly one of the prettiest and most interesting dwarf hardy plants at present in flower. The illustration on page 388 furnishes a very good representation of this North American plant, whose height is only 5in, or 6in at most. It seems to like a deep, moist, peaty soil in a sheltered, partially shaded, corner of the rockery. As divided plants take some time to recover themselves, it has been suggested that the best means of propagation is by seeds. The flowers are star-like and white, and there is a double variety. This species is often called *Anemone thalictroides*.

Corylopsis pauciflora.

This deciduous flowering shrub was introduced from Japan by Mr. Maries, for Messrs. James Veitch and Sons, Ltd., about the year 1878. It flowers in February and early March, and for that reason it is advisable to cultivate it either in pots, which can be removed indoors, or in very well sheltered places. After it has flowered, place the plants outdoors again, where they may be left till shortly before the flowering period of the next year. The pendant flowers are of a pale tea-yellow, and freely produced. Little or no pruning is required, and a compost of leaf mould and loam suits it. An illustration of part of a flowering shoot appears on another page.

Planting Out Tulips from Pots.

Many times have we noticed bulbs, after forcing, allowed to be stood in out of the way corners, unwatered, and generally uncared for for weeks, and sometimes months. With us, as repotting time comes round for young Chrysanthemums, 5in pots are at a premium, and so out go all bulbs that have finished flowering, some after a period of hardening, some, it is to be feared, without. They are all planted in a shaded border under Lime trees, where little else thrives, but each spring they make a brave show, and provide much useful material for cutting. The Tulips are by far the best, though Hyacinths flower more or less strongly. Such a mixture of kinds and sorts would be out of place in a prominent bed, and not always dependable in flowering; but where available spaces, not much in evidence, exist, these may be with pleasure and profit utilised for the reception of pot bulbs after flowering. If they can in any way be made use of, it seems a great pity that they should be thrown away, as so often happens.—W.

Spring Bedding.

In Hyde Park, London, the beds were this year filled largely with Hyacinths and Tulips. The following are some of the varieties of Hyacinths used, and as a rule only one kind, or two very nearly alike, were used in each bed. Thus, *La Franchise* is a pleasing pale flesh-coloured Hyacinth; *Gertrude* is deep pink; *alba superbiens* is white; and *Von Schiller* is ruby red. *Lord Macaulay* is of a deeper rose tint than *Gertrude*, and *Grand Maître* is a light blue. *Fabiola* furnishes a light pleasing pink, and *alba superbissimus* is an excellent pure white, stout, long, and full. It is perhaps the best white. All of the foregoing filled one bed apiece, and all the beds were in line with one another in a central grass area. It will be noticed that all the colours employed are light shades, and practically none are dark. Hyacinth *Gigantea*, flesh-pink; *La Perouse* bluish-grey; and *Grandeur à Merveille*, delicate pale pink, filled one bed very effectively. *Narcissus Figaro*, a graceful medio-crowned flower, with orange cup and yellow perianth, below the white *Madame Van der Hoop* Hyacinth, was very fine; and the same white Hyacinth, with Hyacinth *La Belle Alliance*, which is rich crimson, both being excellent in shape, furnished a really charming bed. The Tulip beds were equally pretty. *T. Proserpine*, rosy-crimson; *Keizers-Kroon*, and *Joost Van Vondel* are there of the best.

Tritonia speciosa.

Amid the many iridaceous flowers now in bloom, the species of *Tritonias* occupy a prominent place, and they are gay and effective flowers. Their culture is similar to that of *Brodiaea speciosa*, or *Ixias*, i.e., a sandy loam is what they delight in, with frame or greenhouse protection. A very fine form of *Tritonia* was staged by Miss Willmott at the R.H.S. meeting on Tuesday last, and was named *Prince of Orange*.

The Double White Arabis.

This is one of the greatest acquisitions amongst recently introduced hardy plants, and is deserving of all the good things that have from time to time been written and said about it. That it will be extensively cultivated there can be no doubt, being of easy propagation, and small pieces quickly spread into large clumps. It should prove of great service in spring bedding both alone and used as a carpet for other subjects. Moreover, the flowers are exceedingly useful and charming in a cut state, and may be used for a number of decorative purposes. Cuttings root readily if kept moist and for a time shaded in a cold frame, and divisions with small portions of root attached soon become established.—J.

Fritillaria Whittalli.

This is one of the *Fritillarias* which will not commend itself because of the brightness of its colouring, but, all the same, it is one which will be liked by those who can discern in these Snake's Head Lilies the intrinsic beauty most of them possess. It grows about a foot high, flowers in April, and has large, bell-shaped flowers, some with slightly recurved margins at the mouth of the bell, but others not recurved at all. The colour of the exterior is a yellowish green, with occasionally a tinge of pale brown near the mouth of the flower. The interior is much more beautiful, the ground colour being a shining greenish yellow and brighter than that of the outside; while round the mouth is a pretty banded marking of light brown. At the top of the flower, which droops over the stem, are six dark spots. One cannot but appreciate the pretty but modest colouring of this *Fritillaria*.—S. ARNOTT.

Floral Decorations in West End Shops.

The following are some West End designs:—1. A cross of purple Stocks, close laid, the left side relieved with mauve Hydrangeas, white Lilliums, *Encharis*, and Lily of the Valley. Loops of broad lavender ribbon were used with these flowers. 2. A wreath, edged with chocolate-crimson *Galax* leaves, all evenly placed; the wreath itself made of white Pelargoniums, Arums, and Lily of the Valley. 3. An open book made of white Stocks, a grey edge got by using Iceland moss. Down the centre was a deep blue ribbon, and on the right hand page four short pieces of the same ribbon, with the words, in gilt letters: "Honi soit, qui, mal y, pense" ("Evil be to him that evil thinks"). Our commas mark off the different words upon the four pieces of ribbon. A spray of white *Erica* ran through these ribbons, and on the left page there was a well-placed cluster of orchids (*Odontoglossum crispum*) and Asparagus. 4. A heart, made of Stocks, with a large bouquet of Jacqueminot Roses on the right top corner, and a solitary large specimen flower of the same Rose in the left corner. 5. Another heart, 3ft deep and 2½ft broad, was of white Stocks over the framework, with a huge loose bouquet of white Roses on the left side, half way up; a smaller bunch of white *Erica* and Lily of the Valley on the right hand top shoulder, and a small cross of deep blue Violets attached to the right-hand edge just below the centre. 6. A huge wreath of mauve Pelargoniums, with a top bouquet of Valley Lilies, mauve Pelargoniums, and Cattleyas. Broad silk ribbon was used to harmonise, one length of which streamed down over the front side of the wreath, while the other was taken through to the under side. Seen suspended well above the eye, this had a grand effect. 7. A heart, edged with Lily of the Valley, each spray enclosed in one of its bright green leaves. Inside this radiating, pretty edge of green and white came a grey ring of *Erica* flowers, which enhanced the effect of the outer circle. The frame was covered with white Stocks, and a bouquet of thirteen Jacqueminot Roses low down on the right side finished a really wonderfully well-executed design. A large cross, 2½ft long, was composed entirely of *Lilium longiflorum* blooms placed in line, one after the other, and a bouquet of blue Irises, with the yellow leaves of *Ophiopogon* at the cross-piece, was very pretty.

Hyacinths and Tulips.

Treatment of the Bulbs after Flowering.

After the spring bulbous flowers have faded, the beds have to be got ready for the summer display. This is where the difficulty lies, as the bulbs have by no means stopped growing. In

way spot, lift the bulbs very carefully, taking particular care not to damage the roots (all diseased bulbs should be discarded), and transplant to their new quarters, where they are left and allowed to ripen till August. By this time they will have finished their growth, and will be in a fit state to lift, select, and dry. They should be stored in a dry place, and planted out again in October. Separate the bulbs about every two years.



TULIPS.

CLARA BUTT (soft rosy pink). 2, MASSENET (inner petals creamy white, outer petals pale rose, margined white, centre of base bluish with rose circle). 3, THE SULTAN (glossy maroon).

fact, it is after blooming that most substance is taken out of the ground. It would be far better if they could be left alone till about the month of August, but, in most cases this is impossible. My plan is to prepare ground in some out of the

If this system is carried out, there will be no necessity to purchase bulbs every year, and a splendid stock can be built up, which, if not up to exhibition form, are certainly all that can be desired for bedding purposes.—J. N.

The Resting of Plants under Cultivation.

(Continued from page 360.)

Cacti and Other Succulent Plants.

The plants under this heading are, as a rule, native of countries where the climate is severely dry for a certain period of the year, and the plants are modified in structure to withstand that dry season by the storing of moisture and food substances in the stems and leaves. In most of the Cacti the leaves are absent, or they are reduced to spines or hairs. This is the case also with the South African Euphorbias and the Stapelias. The Aloes and a good many of the Crassulaceæ have woolly hairs or a waxy substance on the leaves. All these characters are for the purpose of preventing excessive transpiration, or to reduce it to a minimum amount, during the time when the plants are unable to take up moisture through the roots, owing to the dryness of the soil.

When considering the resting season of these, we must observe the difference in their structure. For instance, the Aloes and the Crassulaceæ both have fleshy leaves, but the Aloes generally have much more substance, and will therefore withstand a longer period of drought than some of the thinner leaved Crassulaceæ. Now, the majority of these plants will stand a good quantity of water during the bright days of summer, and, in fact, they could be treated as ordinary plants and benefit by it, as these are the conditions which most nearly approach the growing season in their native homes, which is the winter or rainy season.

A good many of the failures with these plants are due to the excessive application of water during our winter months, when they should be at rest; but I venture to state that more harm is done than is generally supposed by withholding the water for too long a time, so that the plant loses not only too much of its substance in the leaf and stem, but it loses the majority of its roots also. This is more apparent in young plants, which, perhaps, in their native home would have obtained more substance during their first season's growth than they do with us.

When at rest these plants will withstand a fairly low temperature, especially if they are carefully looked after as regards watering, and not given too much. As in the case of bulbs, the higher temperature involves the necessity of more frequent watering, and a tendency to keep the plant active when it should be at rest is the result. That a good many succulent plants will withstand colder treatment than is generally supposed may be seen by a visit to the Cambridge Botanic Garden, where Opuntias and other succulent plants rest through the winter out of doors with protection from rain and very sharp frosts.

Here, again, I believe success is dependent a good deal on the preparation of the plants for their rest by a gradual withholding of the water and the lowering of the temperature; so that by the time we may expect the most severe weather there is no very young and tender growth, which would be the first to suffer.

Trees and Shrubs.

The majority of trees and shrubs are evergreen, retaining their foliage throughout the year. In temperate climates the evergreens are chiefly conifers, and the other woody plants are deciduous. The woody plants of temperate climates form winter buds, or resting buds, at the ends of the branches in the autumn; often even when evergreen, as in the Rhododendron; and these contain all or part of the next year's growth in a more or less developed condition. The bud is exposed to evaporation, cold, wet, and other dangers, but is protected in most cases by scales.

These are sometimes modified leaves, as in Acer and Æsculus; sometimes the stipules of the outer leaves, as in Magnolia; sometimes the scales are hairy, or resinous, so that they form an efficient protection. Many buds are able to absorb water from rain, and this helps them to recover that which is lost by evaporation when the roots are not active.

It is interesting to know that these winter buds of trees and shrubs have, as a rule, characteristic sizes, shapes, and colours, so that many genera, and even species, can be distinguished by the characters of these resting buds.

Our British plants, as I have stated before, obtain their rest by the lowering of temperature, and usually an increased supply of water as well; and this is what we have to consider when selecting foreign trees and shrubs for our gardens as permanent plants out-of-doors. Those from other temperate regions we can usually cultivate with success without trouble; but in a good collection there are many which, although planted in the most suitable situations, against walls and in other sheltered positions, still require attention to help them to survive the resting season, by protection from cold winds, frost, and, in some cases, excessive moisture. These are usually natives of a warmer climate, and do not possess the special adaptations stated above for carrying them through a cold and wet winter.

Here the question arises, Why should we take so much trouble with these foreign plants, which will not survive our winters with a moderate amount of care? My opinion is that we should give a likely plant a fair trial out-of-doors, but give it up if we find it is not likely to become a permanent success; bearing in mind that without these trials many plants which now grace our gardens would only be found under glass, where they are not always seen to the best advantage.

In the dry climates of subtropical regions many deciduous trees and shrubs are found, the leaves falling at the beginning of the dry season. Others, which are not deciduous, possess leathery foliage, which, like the succulent plants, have their stomata sunk, and in many cases have the leaf surface very much reduced to prevent excessive transpiration during the dry season. But under cultivation, especially where they are grown in pots, we do not find it advantageous to keep them quite dry for any lengthened period, but we can reduce the supply of water considerably, which, with a lowering of the



Thalictrum anemonoides. (See page 386.)

temperature during the winter, will give them a sufficient rest from activity, after which they will grow with increased vigour when the temperature rises in spring, and an increased supply of water is applied. In the tropics most trees and shrubs are evergreen, although they have a tendency to form new leaves and to flower at certain periods. Under cultivation, we find it best to keep them moderately dry during the winter months, when the sun has not much power and the days are short, and consequently the temperature is considerably lower, except we use a great deal of fire heat, and this we find is of no advantage. Under these conditions tropical trees and shrubs are not very active, and it serves to give them a chance of keeping back the production of new growth until more favourable conditions of light and heat can be obtained during the lengthening days of spring. There are some, however, which will not withstand a much lower temperature than that of summer, and these have to be collected to the warmest part of the house, where they can be specially cared for.—E. J. ALLARD, Cambridge Botanic Garden.

(To be concluded.)

Plea for a Gardeners' Association.

At a meeting of gardeners held on February 23, 1904, Mr. Owen Thomas in the chair, it was resolved to form a Professional Gardeners' Association, to comprise all who are engaged in any branch of horticulture. A Provisional Committee was then elected to prepare a scheme to be submitted at a future meeting. This committee met on March 8, and decided to arrange for a public meeting to be held in London on June 1, 1904 (the second day of the Temple Show), when proposals for the formation of a national association of gardeners will be submitted. It was also decided to publish a pamphlet setting forth the main objects for which the association is to be formed, and the advantages of co-operation. It is hoped that this purpose will be served by the following notes:—

PROVISIONAL COMMITTEE.

G. GORDON, Chairman.
E. BECKETT.
T. H. COOK.
C. H. CURTIS.
H. J. CUTBUSH.
W. H. DIVERS.

K. DROST.
C. JORDAN.
R. H. PEARSON.
F. K. SANDER.
J. WEATHERS.

W. WATSON, Hon. Sec., Kew Road, Kew.

An effort is now being made to realise the desire for an association which shall include all who are professionally employed in any branch of horticulture, including private and public gardens, the nursery and seed trade, and market gardens. The objects of the association will be:—

- (1) Registration of gardeners.
- (2) Regulation of wages.
- (3) Regulation of working hours.

These three are admittedly the most urgent matters requiring attention. Other questions which the association might take up subsequently are the proportion of apprentices or improvers to journeymen, especially in private gardens; foreign or alien labour; the assistance of sick and aged members, and of gardeners' orphans who may be in need.

There is no reason why gardeners, working together and in the true co-operative spirit, should not obtain such control over questions of this kind, which directly affect the welfare and happiness of the individual and the best interests of British horticulture as would enable them to deal effectively with grievances as they arise. There is little doubt that the employer has often cause to complain of the dull-witted, unskilled "gardener," who does so much to keep the status of the profession at zero, and who will continue to foist himself on the employer so long as means are not adopted to secure to the employer some guarantee of the competence of the candidate for employment.

Although gardening is one of the oldest, and also one of the most important industries of this country, its votaries are absolutely without organisation. It is said that there are 10,000 gardeners in England alone, but if we include commercial and trade gardeners, there are probably at least as many more. An association that succeeds in uniting them on co-operative lines will constitute a force which, under proper guidance, will lift the profession into a higher position than it occupies now. The right of workers to combine for mutual protection and assistance is now recognised and even encouraged. Trade unions, friendly societies, co-operative societies, and similar institutions provide a means for attaining and conserving that independence, which is not only a source of strength, but the foundation of prosperity and happiness. "Associated effort will find its highest level in proportion as all the elements—the body corporate—are healthfully self-reliant, and manfully united for the common good of all. But association will not be strong, however numerous in membership, if the units that compose it are cowards."—Howell.

An objection urged against the proposed association by a few employers and gardeners is that it would cause strife between employer and employed. This objection is a remnant of that prejudice against all workmen's combinations which a century ago led to their prohibition by law. But a very different view prevails now. A few years ago a select committee of the House of Lords, after an elaborate inquiry into what is known as the sweating system in many branches of industry, reported that—"With respect to low wages and excessive hours of labour, we think that good may be effected by the extension of co-operative societies, and by well-considered combination amongst workmen." The late Duke of Argyll, whose views will command respect, said:—"The instincts of men, truer often than the conclusions of philosophy, have rebelled against the doctrine that they are the sport of circumstances; yet finding by hard experience that this is often true of the individual standing alone, they have resolved to try whether it is equally true of the collective will, guided by the spirit and strengthened under the discipline of association."

Whatever mistakes may have been made by other combina-

tions of workers, it is not the intention of the promoters of the Gardeners' Association to attempt anything inconsistent with the rights either of employer or employed, or which will not commend itself to all who have the welfare of horticulture at heart.

The question of wages will undoubtedly demand attention. Generally the wages of gardeners are less than those of ordinary mechanics who build their greenhouses, &c., and whose intelligence and responsibility are, as a rule, below those expected in the average gardener. The argument that gardeners' wages are low because gardening is a luxury is not worth consideration. Employers get labour as cheaply as they can. In many cases the agent or manager controls such matters, and it is certain that if the price of garden work were raised employers would pay it as they do that of other skilled labour, the price of which has been increased 25 to 50 per cent. within the last twenty-five years, while the gardeners' wages have stood still.

There can be no question that the individual workman has little chance of obtaining fair wages unless all of the same class agree not to accept less, and there can be no agreement that will hold without a properly organised association, controlled and guided by a desire to promote the interests of both employer and employed. Low wages do not always mean cheap labour. A discontented man is not actuated as he ought to be by a sense of duty, and is in consequence often a poor workman. He labours under a feeling of unfair treatment, and his work suffers in consequence. The success of British workmen compared with those of other nations is due as much to their healthy, independent condition as to their inherent skill.

Registration.

The association will endeavour to control and regulate the labour market for gardeners by keeping a register of members in which will be recorded the qualifications and experience of every certificated member. It will be open to every employer to make inquiry as to the competence and character of an applicant for employment, who, if not a member, would probably be known to some of those who are. By this means the association will ensure to employers more reliable testimony as to a gardener's character and qualifications than is generally to be obtained now. It will be to the best interests of the association to insist on as high a standard of skill as possible among its members, and to refuse to help the impostor and one who is otherwise unworthy. Every member should, therefore, consider himself a guardian of the status of his profession.

The inefficiency of many gardeners is, unfortunately, too true, a lack of education as well as bad training being too often observable in them. It is also to be feared that boys are accepted as garden apprentices who are too dull and unpromising to find employment in other industries. The association will be opposed to all such weakening influences as these. It is only by insisting on a higher standard of intelligence, as well as of professional knowledge and skill in the youths who desire to qualify as gardeners that the position of the gardener can be improved. Employers who have reason to complain of the want of skill and forethought in the men to whom they have entrusted their gardens will no doubt recognise the desirability of an organisation, the main object of which is to guarantee trustworthy gardeners of sound ability, and to secure for them reasonable remuneration for services rendered.

Regulation of Working Hours.

The working hours for gardeners vary in different parts of the country. There is also considerable disparity between the time worked in private gardens and in public gardens in the same district. Gardeners cannot hope to get an eight hours' day, but it ought not to be difficult to fix the limits of a day's work, beyond which all labour should be counted as overtime. A small staff of efficient men, properly controlled, and working a reasonable day, will do more work, and do it better, too, than twice as many men left to drag through a long day doing what is called routine work without either interest or intelligence. "Excessive work, whether from long hours or from overwork, is disastrous morally and socially, as well as mentally and physically, and at the same time, by its exhaustive process, it really diminishes the productive power of the worker."

It is important that gardeners employed in commercial horticulture should take part in this movement. Commercialism has affected horticulture, as it has so many other arts in this country, and there has been an enormous increase in the number of nurseries and market gardens in the last twenty-five years. The training to be obtained in some nurseries is of such a quality that it should be sought by young men actuated by the progressive spirit; for this country offers opportunities to the gardener where the farmer has failed, and there are many capable young men "champing the bit" in private gardens who might be profitably employed, both for themselves and the community, in some department of commercial horticulture. The Gardeners' Association may be able to assist by endeavouring to obtain land on easy terms for horticultural industries. It may also do something towards removing other disabilities and obstacles,

such as insecurity of tenure and the costly system of distribution.

The meeting to be held in London on Wednesday, June 1, 1904 (the second day of the Temple Show), should be supported by all who are interested. The movement is essentially a co-operative one, and its success therefore depends on individual effort. It is most important that the first meeting should be representative of the whole field of horticulture, and gardeners of all classes—private gardeners and journeymen, gardeners and assistants in parks and public gardens, nurserymen, their foremen and assistants, seedsmen and their assistants, horticultural instructors—all are urged to be present. The meeting will be held in the Essex Hall, Essex Street, Strand, at 6 p.m. (doors open at 5.30).

All those who sympathise with this movement should write to the secretary, who will be glad to receive contributions towards defraying the expenses of printing and distributing this pamphlet, and of the meeting to be held in June. Copies of pamphlet for distribution may be obtained from members of the committee.

Market Gardening.

Market Prices.

The Board of Agriculture and Fisheries has commenced the publication of a weekly return of the market prices of fat and store stock, dairy cattle, dead meat, provisions, fruit, vegetables, hay and straw, at certain representative markets in Great Britain. The prices are supplied by the official reporters of the Board, and are prefaced by a brief summary of the chief features of the week's business, based upon the reports furnished by them. The return contains the information for the week ending with the previous Saturday, and is intended to be issued every Wednesday. It is published at the price of 1d., and is to be obtained from Messrs. Eyre and Spottiswoode, East Harding Street, London, E.C., or Messrs. Oliver and Boyd, Edinburgh; either directly or through any bookseller. This is an extension of the movement which was begun for the protection and guidance of corn merchants, whereby authoritative reports are obtained. Those coming through the newspapers are generally unsafe to follow.

British Flower Culture.

Flower culture at home is increasing so successfully that we are gradually growing less dependent on continental imports of cut blooms. The returns of foreign flowers which found a market in this country during the first three months of the year show a marked decline upon those of a few years ago, and the figures bring home to us the fact that the art of floriculture is receiving more general attention in this country. A Birmingham florist fully endorses this view. The London growers, he said, are now supplying the market, and have been for a long time past with quantities of Roses—a favoured flower, which always finds an extensive market in every town in the country. Until recently we have been dependent for our early Roses upon continental growers. The South of France and the North of Italy, with their climatic advantage, have been able to put a large supply of Roses on the British market before the home growers could hope to compete with them. But in the last few years the London growers have put up glass houses on a very large scale, and they are now able to meet the foreign nurseryman on equal terms, to the distinct disadvantage of the latter. In the matter of bulb culture the English growers have also been forging ahead. Daffodils and Narcissi are now grown very extensively on the sandy soil of Lincolnshire and Cambridgeshire, which have been found to be most congenial to their culture. The British nurserymen have thus been able to furnish the market with an abundance of fresh blooms at a price which spoils the profit of the importers of French flowers. Another reason for the decline of imported flowers is the increasing skill of the amateur gardener. A great many men with comparatively small gardens now succeed in growing all the flowers that they require for household purposes, and the result is that there is a diminishing demand for the products of the professional nurserymen.

The Hose-in-hose Polyanthus.

Very few varieties of this particular kind of Polyanthus are generally cultivated; and they, like the fine old double Primroses, are left to the special care of a few gardeners and florists, who have continued to appreciate them. The special feature in the Hose-in-hose Polyanthus is, of course, the modification assumed by the calyx, which has become an exact counterpart of the corolla. One of the richest coloured varieties of this section was seen in Barr's nursery at Long Ditton a week ago, and which was named *Crimson King*. Other good kinds are *Erin's Yellow*, *Pantaloons*, *Golden Ball*, and *Tortoise-shell*.

Daffodil Treat at Holly Court, Sheffield.

This beautiful place—the seat of F. A. Kelley, Esq.; J.P.—is situate just without the city boundary of Sheffield, and the owner is nothing if not practical. Having devoted considerable time and expense in laying out the beautiful grounds, and in forming a grand collection of Daffodils, Mr. Kelley generously allows the public to participate in his pleasure; and the grounds were thrown open for inspection a week ago. Thither wended tradespeople, shop assistants, workmen and their wives, and all classes of toilers, delighted with the opportunity thus afforded them. Ah! What exclamations of delight, as the vast carpet of varied-tinted flowers met their gaze! After passing through the Dutch garden, and threading through delightful shrubberies and by the charming lake, with its variety of bird-life, the visitors, on entering the wood, are met with the sight of 3,000 *Sir Watkin* Daffodils, the trumpets large, and the contrasting perianth producing a fine effect. There was also a batch of 3,000 *Horsfieldi*, together with *Stella*, *Telamonius Plenus*, *Emperor*, *Empress*, *Golden Spur*, *Bicolor Grandis*, *Barri conspicuus*, and the pretty little *Leedsii amabilis*, all in batches of from 1,000 to 3,000. In all, there are some 70,000 bulbs, and the carpet of grass serves to show the flowers to advantage.

Some 25,000 people visited Holly Court during the two days on which it was open, and the complete absence of injury is proof of the appreciation of the public of the privilege accorded them. The *Rhododendrons* also are coming into flower, and the large variety of magnificent shrubs renders the grounds altogether attractive, and the general condition reflects credit on Mr. Kettlewell, the gardener, and his staff. There is also a magnificent collection of *Malmaison Carnations*, almost every variety being grown, including all the new ones; and a better, stronger, cleaner, and more healthy lot would be hard to find. There are probably some 3,000 plants, and not a sign of rust to be seen.—W. L.



Hose-in-hose Polyanthus.

Societies.

Royal Horticultural, Drill Hall, May 3rd.

Another very excellent exhibition was displayed on Tuesday last in the Drill Hall at Buckingham Gate, S.W. Miss Willmott's Narcissi, nearly all of them white or pale yellows, were amongst the finest that have ever been seen. We were particularly impressed with the beauty of N. Flag of Truce, which we have likened to a white Johnstoni. Tulip collections were particularly beautiful, and there were many groups of alpine plants in flower. Orchids were numerous, though less choice, on the whole than they were at the previous meeting.

The general meeting of Fellows held during the afternoon was well attended, and Mons. Charles Baltet read a paper on "Enemies of the Apple-tree." Fifty-five candidates were elected Fellows, making a total of 553 new Fellows since January 1 last. Amongst those elected on Tuesday were Lady Evelyn Cobbold, Commander Arthur Lingham, R.N., and Sir Nathaniel Nathan.

Fruit and Vegetable Committee.

Present: Mr. A. Dean (in the chair); with Messrs. James H. Veitch, P. C. M. Veitch, S. Mortimer, Edwin Beckett, W. Bates, John Lyne, H. Parr, G. Norman, Owen Thomas, H. Markham, F. Q. Lane, J. McIndoe, J. Willard, A. H. Pearson, W. Fyfe, J. Jacques, and G. Reynolds.

Messrs. H. Cannell and Sons, Eynsford sent their Early Cabbage, for which a cultural commendation was given; and Messrs. Sutton and Sons, Reading, had their Early Giant Pea, for which a cultural commendation was also given.

Orchid Committee.

Present: Mr. Harry J. Veitch (in the chair); with Messrs. James O'Brien, J. Gurney Fowler, Jas. Douglas, Walter Cobb, H. Ballantine, Norman C. Cookson, de Barri Crawshay, Jeremiah Colman, J. Charlesworth, W. A. Bilney, Richard G. Thwaites, A. A. McBean, F. W. Ashton, E. Hill, F. J. Thorne, T. W. Bond, F. Sander, M. Gleeson, J. W. Odell, W. Boxall, H. A. Tracy, W. H. White, Francis Wellesley, H. Little, and J. Wilson Potter.

Mr. J. Bradshaw (gardener, Geo. Whitelegg), Southgate, N., sent *Cattleya intermedia* alba, *C. Lawrenciana*, *C. Schröderæ* alba, *Lycaste Balliæ*, *Lælia purpurata*, and a fine assortment of *Odontoglossums*. Mr. H. T. Pitt, Stamford Hill, had a very varied group of fine things: *Odontoglossum crispum* Pink Pearl, *Vanda teres*, O. c. *The Geisha*, O. *Wilckianum* Pittiæ, *Vanda Devonianum*, *Oncidium leucochilum*, *Odonto-Cervantesi*, *Lælia purpurata* Novelty, *Anguloa uniflora*, and other things. Mr. H. S. Goodson (gardener, Geo. E. Day), West Hill, Putney, had a group of *Dendrobiums*, *Odontoglossums*, *Cattleya citrina*, *Phaius*, *Oncidium concolor*, and *Zygopetalum Mackayi*.

Messrs. James Cypher and Sons, Cheltenham, staged a showy group, consisting of *Sophranitis grandiflora*, *Lælia Latona*, *Dendrobium Nestor*, *Masdevallia Harryanum*, *Scarlet King*, *Dendrobium Devonianum*, *Lælia purpurata*, *D. thyrsiflorum*, *Odontoglossum crispum* Crawshayanum, and *Cattleya Schröderæ*. Messrs. Stanley, Ashton, and Co. contributed *Masdevallia ignea*, *Cypripedium Schröderæ* splendens, *Cymbidium Lowianum*, *Oncidium varicosum* Rogersi (very fine), *Cattleya Schilleriana*, *Odontoglossum crispum* in good varieties, and O. *Adrianæ*.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, staged *Miltonia Roezli* album, *Cattleya intermedia*, *Cattleya Mozart*, *Dendrobium chrysotoxum*, and *Lycaste aromatica*. Mr. C. J. Lucas (gardener, G. Duncan), Wrexham Court, Horsham, sent some excellent *Odontoglossums*; while Charlesworth and Co., Bradford, presented *Lælio-cattleya Mercia*, a fine yellow; *Cattleya Jupiter*, rich coppery orange; L.-c. *Hyeana splendens*, L.-c. *Schröderæ* Digbyana, L.-c. *Mossiæ* Digbyana, and some nicely spotted *Odontoglossum crispum*. Mr. Norman C. Cookson (gardener, H. J. Chapman), Oakwood, Wylam-on-Tyne, was represented by *Odontoglossum crispum* xanthotes Cooksonæ, O.-c. *Clive*, *Phaius x Phœbe*, *Cattleya x Jupiter* Oakwood variety, and other choice pieces.

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. E. H. Jenkins Geo. Nicholson, J. F. McLeod, John Green, R. Hooper Pearson, W. Howe, C. R. Fielder, Chas. Dixon, W. Bain, Chas. Jeffries, C. J. Salter, W. P. Thomson, Chas. E. Shea, Harry Turner, W. J. James, Geo. Paul, Chas. T. Druery, John Jennings, H. J. Jones, J. W. Barr, R. M. Wallace, and Jas. Hudson.

Messrs. R. and G. Cuthbert, Southgate, arranged a charming group of hardy flowering shrubs in their well-known style. The base was composed of groups of *Azalea amœna*, *Azalea nristica* fl.-pl. *Ribera*, *A. mollis* in variety, *Acers*, and a variety of foliage plants. The standards comprised well-flowered plants of *Ghent Azaleas*, *Deutzia crenata flore-pleno*, *Lilac Madame Lemoine*, and double red Thorns.

Messrs. James Carter and Co., High Holborn, made a fine display of *Cinerarias*, the stellate and florists' forms being well represented. The latter were especially fine, the plants being dwarf, and the flowers exceptionally large and bright in colouring.

A beautiful group of *Acers* was that arranged by Messrs. J. Peed and Sons, West Norwood. The light green foliage con-



Tritonia speciosa. (See page 386.)

trasted well with the coppery shades, while the golden varieties also contributed well to the variation. Mr. John Russell, Richmond, made *Clematises* his speciality on this occasion, although a few other subjects were exhibited.

Messrs. W. Cutbush and Sons, Highgate, made a pretty display of *Rose Dorothy Perkins*, arranged tastefully with ferns and bamboos. The *Roses* were well developed, and some of the specimens 9ft or 10ft high. The same firm made a large display of hardy flowers and rock plants, arranged naturally. *Iris sofarana magnifica* was fine, *Cypripedium parviflorum*, *C. calceolus*, and *C. pubescens* were also staged. A variety of flowering shrubs and suitable conifers made a good background.

From Messrs. James Veitch and Sons, Ltd., Chelsea, came a beautiful group of hardy flowering trees, and a few other subjects. The branches exhibited were loaded with blossom, the chief being *Cerasus pseudo-Cerasus Watereri*, and *Pyrus Malus Scheideckeri*. *Fabiana imbricata* and *Hydrangea Hortensia* Veitchi were also noted. The same firm also staged *Cinerarias* of the stellate type, in which *Fantasy* was noted for its new form and habit. *Antique Rose* is an unique colour in the old type. *Clianthus puniceus* was also interesting, while a really fine collection of *Tulips* completed the display.

Messrs. J. Cheal and Sons, Crawley, also arranged an exhibit on the ground floor of hardy flowering shrubs, with rock and alpine plants. The latter were rather out of place staged so low down. The collection of *Lilacs*, *Pyruses*, and *Acers* was noteworthy. The standard *Cytisus purpureus pendula* was well flowered. Some boxes contained nice clumps of *Phlox canadensis*, *Primula Sieboldi*, *Orchids mascula*, and *Gentiana acaulis*.

From Mr. W. D. James (gardener, W. H. Smith), West Deer Park, Chichester, came a group of *Schizanthus Wisetonensis*. The plants were in 8in pots, and literally a mass of bloom.

Messrs. T. Cripps and Son, Tunbridge Wells, contributed a miscellaneous group, which consisted of *Roses* *Crimson Rambler*

and Dorothy Perkins; Clematises, Acers, and a variety of foliage plants. The group was well arranged, and had a pleasing effect.

A fine exhibit of Fortune's Yellow Rose came from Lady Wantage (gardener, Mr. W. Fyfe), but the effect of the display was marred by its position, due doubtless to the crowded state of the hall. The Roses were contained in twenty-four vases, and were greatly admired.

From Mr. Chas. Turner, Slough, came a nice exhibit of Auriculas, which included most of the well-known forms; also a few very promising seedlings. A basket of pansies came from Mr. F. Lloyd (gardener, Mr. E. Mills), Coombe House, Croydon; a fine variety, that should prove useful to the market growers. Mr. J. R. Box, West Wickham, had a table of alpine plants. Mr. Richard Anker, Addison Nursery, Napier Road, Kensington, made a novel display of *Erica persoluta alba*, in tiny pots, not exceeding 2 in across, and about the same in depth. They were certainly a curiosity, as were also *Azalea indica* grown in the same size pots.

Hardy flowers were staged by the Misses Hopkins, Mere, which included a nice collection of duplex Polyanthus; Auriculas of the fancy type; Daisy Alice, and a few other hardy flowers.

A collection of Rhododendrons in pots came from Messrs. John Waterer and Sons, Ltd. Bagshot. They formed a pleasing change to the rest of the exhibits. The best were Pink Pearl, Cynthia, Charlie Waterer, and Mrs. E. C. Stirling. Mr. E. Potten, Camden Nursery Cranbrook, staged a small group of Rose Dorothy Perkins, which were nicely developed.

Mr. Jas. Douglas, Edenside, Great Bookham, exhibited a dozen Auriculas in pots, which were greatly admired, the best being Olympus, Triumph (a fine, green-edged variety), Duke of York, and Vesta.

Messrs. T. S. Ware, Ltd., Feltham, made a fine exhibit, which consisted chiefly of Primulas; the Sieboldi varieties being simply charming, as were also the varieties of *P. japonica*. The exhibit also contained Sarracenias, Saxifragas, Trillium erectum, and a good variety of Aubrietias.

Roses were tastefully displayed by Messrs. Hobbies, Ltd., Dereham, the background being composed of Dorothy Perkins, in fine form. The others were arranged in vases, and included Souvenir de Pierre Notting, Mrs. B. Cant, Purity, Lady Roberts, Soleil d'Or, and Boadicea.

A grand collection of flowering shrubs was staged by Lord Aldenham (gardener, Mr. E. Beckett). They were arranged in vases, and there were about sixty-eight distinct subjects: a truly fine collection. A few of the most noteworthy were *Cerasus japonica variegata*, *Daphne pontica*, *Ribes sanguineum flore-pleno*, *Magnolia conspicua*, *Choisya ternata*, and *Berberis Darwini*.

Mr. H. B. May, Dyson's Lane Nurseries, Upper Edmonton, made a good display of Zonal Pelargoniums in pots. The best were Hall Caine, Mark Twain, Conan Doyle, Lady Ilchester, and Fire Dragon. The exhibit was completed with small decorative plants and ferns. Hardy plants came from Mr. M. Pritchard, Christchurch, Hants, the chief of which were *Scilla nutans alba major*, *C. n. rosea*, and *S. campanulata aperta*, *Trollius Fortunei* fl.-pl., *Lithospermum prostratum*, and *Alyssum saxatile citrinum*.

A collection of cut Camellias came from Sir F. T. Barry, Bart., M.P. (gardener, Mr. R. Brown), St. Leonard's Hill, Windsor which were taken from plants growing in the open air without protection. The flowers comprised a number of seedlings, also The Mikado, Alba Plena, Conspicua, Reine des Belges, Comtesse Lavinia Maggi, and Eclipse.

Mr. Amos Perry, Hardy Plant Farm, Winchmore Hill, made a good exhibit of hardy flowers, in which were noted Geum Heldreichi, Trillium Snow Queen, Arnebia echioides, Irises in variety, Megasea Brilliant, M. gigantea, Veronica repens, and a large variety of orchids.

The Guildford Hardy Plant Nursery also staged an interesting display of hardy flowers chiefly in pots and pans. A pan of *Gentiana verna* was particularly good; also a pan of *G. acaulis*. Saxifragas, Irises, and Phloxes were noted in variety.

A glorious display of Roses came from Mr. G. Mount, Canterbury. Most of the flowers were staged in vases with long stems. The group of Mrs. J. Laing was simply superb. Other fine flowers were Ulrich Brunner, Caroline Testout, Frau Karl Druschki, Liberty, Mildred Grant (very fine), Niphetos, and Madame Abel Chatenay.

Messrs. B. R. Cant and Sons, Colchester, also made a display of Roses in pots and in vases. The former included Blush Rambler, in fine form, Dorothy Perkins, and Dundee Rambler. The best in vases were Prince Arthur, La France, The Bride, Killarney, Kaiserin Augusta Victoria, and Catherine Mermet.

Messrs. Barr and Sons, Covent Garden, again made a large exhibit of Narcissi and Tulips. In the former were Lord Roberts, L'Innocence, Cassandra, Madame Plomp, Ariadne, Lobster, Duke of Bedford, Ranger Johnston, Weardale Perfection, and Rosalind. The Tulips included a good collection of the Darwin varieties, also several species.

Miss Willmott, Warley Place, Brentwood, staged a fine display of Narcissi, which attracted a vast amount of attention

from the fanciers present. White Ensign, Liliac, Will Scarlet, Moonlight, Seabird, Francesca, Noble, King Alfred, and Mrs. Berkeley appeared to be the most promising, but all were really beautiful.

Messrs. H. Cannell and Sons, Swanley, again staged a fine collection of Pelargoniums, which comprised both the Zonal and Decorative types. In the former, Countess of Hopetoun, King Victor, Mrs. Geo. Cadbury, Capt. Holford, and Queen of Italy. In the Decorative section Eventide, Lord Kitchener, Linda, Edward Perkins, and Lord Carrington were among the best.

Miss Easterbrook, Fawkham, Kent, sent a basket of Roses, which was conspicuous not only for the quality of the flowers, but also for the artistic manner in which the flowers were arranged.

Narcissus Committee.

Present: Mr. Henry B. May (in the chair); with Miss E. Willmott, Messrs. Arthur R. Goodwin, W. F. M. Copeland, G. Reuthe, E. A. Bowles, John Pope, Geo. S. Titheradge, P. R. Barr, Walter T. Ware, W. Poupart, J. T. Bennet-Poë, R. Sydenham, R. Dean, J. D. Pearson, Jan de Graaff, S. Eugene Bourne, W. Goldring, Chas. T. Digby, A. Kingsmill, James Walker, J. R. C. Boscawen, W. A. Milner, and Chas. H. Curtis.

From Messrs. Hogg and Robertson, Dublin, came a good collection of Tulips, which had carried splendidly. The blooms were well developed and perfectly fresh. The chief varieties and species were *T. primulina*, *T. Dasystemæ*, *T. concinna*, *T. Kolpakowskiana*, and *T. K. miniata*, and *T. Haageri nitens*, while the other types were represented by La Rêve, Pink Beauty, Koh-i-noor, and some good Darwin varieties.

Messrs. Gilbert and Son, Dyke, Bourne, contributed a gorgeous display of Anemones, the St. Brigid varieties being especially fine. *A. fulgens*, *A. Pulsatilla*, and *A. nemorosa* were also nicely grown. The well-known King of Scarlets was much in evidence.

Mr. G. Reuthe, Hardy Plant Nursery, Keston, Kent, exhibited a table of Narcissi and hardy flowers, which included plants of *Cardamine pratense* fl.-pl., *Erythronium Watsoni*, *Androsace villosa*, *Ramondia Nuttalliae*, *Primula Sieboldi* in variety, and *Viola pedata* bicolor.

Medals.

ORCHID COMMITTEE.—Silver Floras for groups of Orchids to Messrs. Charlesworth & Co, Bradford; Stanley, Ashton, & Co., Southgate; J. Bradshaw; H. S. Goodson, Putney; and James Cypher and Sons, Cheltenham; Silver-gilt Floras to N. C. Cookson, Oakwood, Wylam-on-Tyne, and H. T. Pitt, Stamford Hill.

FLORAL COMMITTEE.—Silver-gilt Flora to Messrs. G. Mount, Canterbury; Silver Floras to J. Veitch & Sons, Chelsea; Lord Aldenham, Aldenham House; Messrs. J. Carter & Co., High Holborn; B. R. Cant & Sons, Colchester; H. B. May, Upper Edmonton; R. and G. Cuthbert, Southgate, and W. Cuthbush & Son, Highgate; Silver Banksians to Cannell & Sons, Swanley; Gilbert & Sons, Lincs.; T. S. Ware, Ltd., Feltham; W. D. James, West Dean Park; Cheal and Sons, Crawley; T. Cripps and Sons, Tunbridge Wells; Waterer and Sons, Bagshot; Bronze Floras to J. Peed & Sons, Streatham; Bronze Banksians to Hobbies, Ltd., Dereham; M. Pritchard, Christchurch; J. R. Upton, Guildford; Sir F. T. Barry, Bart., M.P., Windsor.

NARCISSUS COMMITTEE.—Gold medal to Miss Willmott; Silver-gilt Flora to Messrs. Barr & Sons; Silver-gilt Banksian to J. Veitch and Sons; Silver Floras to R. H. Bath, Ltd., and R. Wallace & Co.

Certificates and Awards of Merit.

Auricula Triumph (J. Douglas).—Green-edged, large, round, paste very white, eye moderate in size, and good shape, with a fine even truss. A.M.

Auricula, Vesta (Mr. James Douglas).—A grey-edged variety of good size, even, well-rounded, the paste very well defined, and the yellow eye of the right size. A.M.

Carnation, Leander (Felton & Sons, Hanover Street, S.W.).—An excellent warm salmon-carmine Tree Carnation, of large size, with smooth round petals, good substance, stout calyx, and clove scented. A.M.

Clivia miniata aurea (Mrs. P. Rogers).—This is a sweet yellow variety, not generally known. A.M. From Burncoose, Perranwell, R.S.O., Cornwall.

Lomaria Mayi (Mr. H. B. May, Edmonton).—A vigorous handsome fern, the fronds 2½ ft. to 3 ft., of a bright green colour, and arches gracefully. F.C.C.

Narcissus, Flag of Truce (Miss E. Willmott).—This might almost be described as a white N. Johnstoni. It is certainly one of the loveliest novelties of recent years. A.M.

Narcissus, White Ensign (Miss E. Willmott).—A large-flowered poeticus, with broad white segments, and a bright citron cup, edged reddish. A.M.

Narcissus, Count Visconti (Miss E. Willmott).—This is a moderate-sized trumpet Daff., in which N. Johnstoni has impressed its form. The funnel-shaped trumpet is bright canary yellow, and the segments are pale sulphur.

Nicotiana Sanderae.—Grows 3 to 4 ft. high, branches considerably, and bears abundance of crimson-purple flowers. F.C.C.

Odontoglossum crispum Clio (Mr. W. Thompson, Stone).—A showy variety with flowers of good size and form, flushed throughout with rose-mauve. The lip is of fair shape, spotted with chocolate-brown. A.M.

Odontoglossum nebulosum, Gurney Wilson (Mr. G. Wilson).—Spotted with dull brown over a white ground. A.M.

Odontoglossum Wilckianum Pittie (Mr. H. T. Pitt, Stamford Hill).—A cultural commendation was awarded for a plant bearing a raceme of 16 flowers.

Onosma alba (Mr. M. Pritchard, Christchurch).—A white *Onosma*, and meritorious on that account. A.M.

Saxifraga Rhei *superba* (Messrs. T. S. Ware, Ltd.).—A large flowered form of *S. Rhei*. A.M.

Tritonia, *Prince of Orange* (Miss E. Willmott).—Has more orange colour in the flowers than *T. speciosa*; a showy, bright flower. A.M.

Tulip, *Moucheron* (Messrs. R. H. Bath, Ltd.).—A rich, bright glossy crimson, the segments recurving at the tips, the flower deep and massive. A.M.

to was materially atoned for by the welcome presence of the exhibits of the veteran expert, Mr. James Douglas, Great Bookham, and who at last year's show was conspicuous by his absence.

In the first class, which was for six show Auriculas, dissimilar, Mr. Douglas was to the fore with fine examples of Magpie, Richard Headley, Mrs. Hewood, Cato, Ruby, and Geo. Lightbody; second, Messrs. Pope and Sons, King's Norton, with Gerald, Acme, Abraham Barker, Heatherbell, Ruby, and Reliance; third, Mr. C. Winn, Selly Hill, Birmingham; and fourth, Mr. J. Stokes, Harborne, with Miss Ethel, Mrs. Potts, Heatherbell, Geo. Rudd, Shirley Hibberd, and Ruby.

For four plants, dissimilar, Mr. Douglas was again to the front, with George Lightbody, Mrs. Henwood, Magpie, and Raven; second, Mr. C. Winn, with Ruby, Lancashire Hero, W. Brockbank, and Mrs. Potts; third, Messrs. Pope and Sons, with Acme, Gerald, Mrs. Potts, and Heatherbell; fourth, Mr. S. T. Healey; fifth, Mr. J. Clements. For two show Auriculas,



Croton, Lady Zetland. (See page 386.)

Tulip, *Sir T. Lipton* (Messrs. J. Veitch & Sons, Ltd.).—A rich glowing crimson like *Artus*, but the flower is more globular, the segments large and firm. A.M.

Tulip, *De Wet* (J. Veitch & Sons).—A very bright golden orange-red; a tapering flower of good size. A.M.

National Auricula and Primula: Midland Section.

The fifth annual exhibition of this section of the National was, by a fortunate coincidence, held in conjunction with the Daffodil show in the Botanical Gardens, Edgbaston. The scheduled date was April 26 only, but the majority of the exhibitors, in conjunction with the indefatigable hon. secretary, Mr. R. Holding, consented to extend it to the next day. The exhibits were staged in the shady Palm house, a convenient separation from the adjoining show of Daffodils, held in the Exhibition Hall. There was keen rivalry throughout nearly the whole of the classes, and notwithstanding the absence of such noted usual exhibitors as the Rev. F. D. Horner, Messrs. Ben Simonite, W. H. Midgley, and H. R. Brown (of Handsworth), the exhibition was unsurpassed by any previous record as regards number and quality, whilst the absence of the exhibitors alluded

Mr. R. C. Cartwright, King's Norton, led with Shirley Hibberd and Mrs. Potts; second, Mr. E. Danks, with the foregoing varieties; third, Mr. H. E. Burbridge, with Shirley Hibberd and Cleopatra; fourth, Mr. J. Clements; and fifth, Mr. S. T. Healey.

Single plants, green edges.—First, Mr. R. C. Cartwright, with Shirley Hibberd; second, Mr. C. G. Ludford, with Abraham Barker; third, Mr. C. Winn, with James Hannaford.

Grey edges.—Mr. F. T. Poulson, with Geo. Rudd; second, Messrs. Pope, with Rachel.

For white edge.—Messrs. Pope and Sons, with Acme; second, Mr. H. E. Burbridge, with Mrs. Dodwell; third, Mr. C. Winn, with Acme.

For a self.—First, Mr. H. E. Burbridge, with Gerald; second, Messrs. Pope and Sons, with Ruby; third, Mr. F. T. Healey, with Mrs. Potts.

Seedling stage Auriculas.—First, Mr. James Douglas, with Prince Charming, who was also second, with Vesta.

Alpine Auriculas, six varieties.—First, Mr. J. W. Bentley, with Dr. Kershaw, Tilly Slowboy, Modesty, Dr. Pegge, Attention, and Queenie; second, Mr. J. Douglas, with J. F. Kew, Minerva, Hilda, Firefly, Thetis, and Rosy Morn.

For four alpinas.—First, Mr. J. W. Bentley, with Novelty, Estella, and Bunthorne; second, Mr. J. Douglas, with Golden Disk, Rosy Morn, Ganymede, and Firefly; third, Mr. R. C. Cartwright, with Firefly, Blue Peter, J. F. Kew, and Thetis; Messrs. Pope and Sons, Mr. C. Winn, and Mr. E. Danks followed as in the order named. For two plants.—First, Mr. J. R. Holding, with Argus and Mrs. Gorton; second, Mr. F. T. Poulson, with Thetis and a seedling.

For a single plant, gold centre, Mr. J. W. Bentley led the way with Bunthorne. For single plant, light centre.—First, Mr. J. W. Bentley, with Miss Baker; second, Mr. R. C. Cartwright, with J. F. Kew; third, Mr. F. T. Poulson with Isis.

For pairs for maiden growers.—First, Mr. J. R. Holding, jun., with Beauty and Heatherbell; second, Mr. C. J. Fox.

For three show and three alpine Auriculas by amateurs.—Mr. R. Holding won the gold medal and first prize with Mrs. Potts, Mrs. Henwood, Cleopatra, Perfection, J. F. Kew, and Friendship; second, Mr. H. E. Burbridge, with Mrs. Potts, Heatherbell, Mrs. Dodwell, John Allen, and Mrs. M. Smith.

For a seedling with gold centre, Mr. R. Holding led with Golden Acme; second, Mr. Holding, with Richard Dean; and third, Mr. R. C. Cartwright, with Caerleon.

For four seedling alpinas.—First, Mr. R. Holding, with Golden Acme, which possesses the merits of a perfect flower.

Premier stage Auricula.—First, Mr. James Douglas, with Magpie. Premier alpine Auricula.—Mr. J. F. Douglas, with J. F. Kew. The silver medal was won by Mr. J. Douglas, who had forty-five points in the aggregate. The bronze medal fell to Mr. R. C. Cartwright, with sixteen points.

Polyanthuses were very well staged. For four plants, gold-laced, Mr. J. W. Bentley was first with Mrs. Brownhill (2), Cheshire Favourite, and Sidney Smith; second, Mr. J. Stokes, with George IV., Miss Turner (2), and Middleton Favourite; third, Mr. J. Clements, with seedlings. In the class for single plants, gold-laced, Mr. J. W. Bentley won with Sarah Holden; same exhibitor second, with Lancashire Hero; third, Mr. J. Stokes, with Miss Turner; and fourth, the same exhibitor, with George IV.

For a group of Primulas, Auriculas, or other alpine plants in box or basket, not exceeding 3ft across either way, Messrs. Pope and Sons were placed first, with a very good multifarious assortment; second, Mr. R. C. Cartwright, with an excellent assortment of Primulas chiefly; and Mr. J. Clements third, with a much smaller group. Mr. R. Holding had several very promising seedling alpine Auriculas.

Scottish Horticultural.

The monthly meeting of this association was held in Dowell's Rooms, Edinburgh, on Tuesday, the 3rd inst., Mr. McHattie, president, in the chair. The meeting was a very large one. After formal business, Mr. Gordon, V.M.H., of Kew, delivered a most interesting and eductive lecture on "Flowering Trees and Shrubs," with limelight illustrations. Mr. Gordon spoke for over an hour, and delighted the audience with a large number of photographs of very beautiful specimens of a very large variety of trees and shrubs, many of them taken in and around Kew Gardens, including many of the newer and rarer introductions, as well as the leading well-known kinds. Mr. Gordon also, in speaking to the various pictures, made many very useful hints on their cultivation. At the close an interesting discussion took place, Mr. Laird, Mr. Grieve, Mr. Mackenzie, and others being the chief speakers. A very warm vote of thanks was awarded to Mr. Gordon.

The exhibits were numerous and interesting. Messrs. Methven and Sons exhibited a number of beautiful variegated Maples in pots, and a number of well-grown Hydrangeas, and two handsome *Tabernaemontana coronaria*. Messrs. Dicksons and Co. showed a number of attractive double scarlet Anemones in pots. A beautiful specimen *Calceolaria* from Mr. Woodrow had a cultural certificate. From Mr. Johnstone, Hay Lodge, *Tillandsia nobilis*. Mr. Grieve had various hardy flowers; Messrs. Todd and Co. exhibited some choice Violas, and were awarded a certificate for a very pure white novelty, Virgin White. Mr. Leslie, Trinity Cottage, showed some handsome seedling greenhouse Rhododendrons. At the next meeting, Mr. Grieve, Redbraes Nursery, will give a paper entitled "Florists." A vote of thanks to Mr. McHattie brought the meeting to a close.

Sussex Weather.

The total rainfall at Abbot's Leigh, Hayward's Heath, for the past month was 1.59in, being 0.10in below the average. The heaviest fall was 0.59in on the 12th. Rain fell on eleven days. The maximum temperature was 66deg on the 14th, the minimum 32deg on the 22nd and 26th. Mean maximum, 58.06deg; mean minimum, 40.05deg; mean temperature, 49.05deg, which is 1.98deg above the average of twenty-three years. A fine month, with just enough rain to keep the surface of the soil from getting too dry. Fruit trees look extremely well. The blossom is strong, clean, and healthy. There are less signs of caterpillars than usual.—R. I.



Hardy Fruit Garden.

TRAINING YOUNG TREES.—Careful attention should be given those that are placed against walls and fences. Where it is seen that any shoots are taking the lead in detriment to the remainder of the tree, they should be depressed or pinched, allowing the weaker shoots to grow in a more upright manner. If the leading shoots of young pyramid Pears and Apples appear to be going away too strongly, take out the points, allowing the topmost break to extend afterwards. Stakes should be provided for supporting these central shoots, or they are apt to get out of line and spoil the appearance of the trees.

APRICOTS.—Continue the needful attention to the trees; removing superfluous shoots, stopping those that are over-strong, and reduce somewhat the load of fruits where these have set very thickly. It will be wise, however, to wait a week or two longer before finally thinning, as there is still risk from frost.

PEACHES.—Attend to the growths of these as advised above for Apricots. Shoots attacked by aphids may have their points dipped in a solution of tobacco and softsoap, or in bad cases the trees should be syringed with this or a similar insecticide. A weekly or bi-weekly washing with clear water from syringe or garden engine will be of great benefit during bright weather.

GOOSEBERRIES.—Examine the branches of these for caterpillar or the larvæ of the saw-fly. Hand-picking is the surest remedy for this pest, if time can be found for the work. Dusting with hellebore powder is sometimes practised, but this should only be done in the early stages of the berries, or they must be washed before being used. A mixture of soot and lime dashed freely amongst the bushes is also an excellent deterrent. Wherever the evil exists it must be fought, as it has such a disfiguring and devitalising effect upon the bushes.

STRAWBERRIES.—Old plantations of these may have liquid manure poured freely between the rows, but if the ground is dry it should first have a soaking of clear water. The stimulant will have a greater effect upon the crop if applied now, than if given later when the berries are swelling. See that the land is free from weeds, forking out those of a deep rooting nature, and mulch with light material from the stables. Do not allow weakly and late planted crowns to bear flowers, but the plants may be allowed to produce a few runners for early layering.

GENERAL REMARKS.—All trees planted last autumn and mulched, may now have the mulching removed to give the roots the benefit of sunshine and the increased warmth. Give wall trees liberal supplies of water should dry weather prevail, and all trees swelling heavy crops of fruit should be given liquid manure (diluted with an equal part of water if strong), having first ensured that the ground is in a moist condition. Trees that make unduly strong growth should not be fed in this manner. Cherries on walls should be frequently syringed to ensure cleanliness; unless measures are taken to ensure this the trees quickly become a prey to the black aphids.—J. W., Newent, Glos.

Fruit Forcing.

CHERRY HOUSE.—With the fruit ripening syringing must cease, the Cherries being kept dry, but atmospheric moisture should be permitted by keeping the surface of the borders moist. Admit air constantly, as, if condensation takes place, the fruit is seriously affected, cracking, and becoming impaired in quality. If necessary, a thorough supply of water should be given to the border. Tie in the shoots as they advance, and stop those not required for training at about the fifth leaf. If black aphides are troublesome, dip the infested shoots in tobacco water or some approved insecticide, rubbing them gently with the fingers whilst wet. Ventilate freely on all favourable occasions, having recourse to the heating apparatus where external conditions are unfavourable to secure a circulation of warm, rather dry air. Trees in pots require abundant supplies of water and nourishment. Place some netting over the ventilators to prevent birds attacking the Cherries.

VINES: EARLY HOUSES.—The Vines started at the new year have the Grapes in an advanced stage for ripening; some are commencing to colour, and will need a circulation of warm, rather dry air. An arid condition of the atmosphere, however, must be avoided, inasmuch as it is sure to induce an attack of

red spider. It is imperative to keep the foliage clean and healthy for as long as possible. Where red spider has obtained possession, prompt measures should be taken for its destruction. Recourse is sometimes had to the syringe, which, even when the water is clear and soft, is apt not only to more or less damage the bloom if advanced in colouring, but to leave a deposit on the berries greatly detracting from their appearance. Sponging the leaves is a safe means of preventing the spread of the mites, and, taken in hand on the first appearance of the pests, is not so tedious as it seems.

HOUSES OF RIPE GRAPES.—The earliest Vines have ripened their crops somewhat earlier than usual, are well coloured, and of excellent quality. Maintain a circulation of air, and allow the temperature to fall to 60deg at night. The soil must be kept healthfully moist, so as to keep the foliage in good condition. Moderate air moisture is also essential, to prevent the foliage prematurely ripening, and it benefits rather than prejudices the keeping of the Grapes, provided the air is not stagnant. The Grapes are liable to lose colour with hanging. A light will be beneficial in helping to retain colour, especially in Black Hamburgh and Madresfield Court. A double thickness of herring netting, or a single thickness of pilchard netting, placed on the roof lights is sufficient. It is also desirable, where it can be practised without crowding the principal leaves, to allow a moderate extension of the laterals, which will tend to promote root activity and assist the Vines to recuperate their wasted energies.

MUSCATS.—The Vines started in December, and brought forward gently in the early stages, are now beginning to colour. Muscat of Alexandria takes longer to colour than Madresfield Court and Black Muscat (Muscat Hamburgh), and the berries of Muscat of Alexandria are liable to shrivel unless the Vines are well supplied with water and nourishment at the roots. When these are provided a much drier condition of the atmosphere may be allowed than is otherwise safe, and it is absolutely essential to good finish in Muscats, for when in a saturated atmosphere there is danger of "spotting," and what is gained in size is lost in colour and quality. Directly the Grapes change colour, give a thorough supply of water or liquid manure, following with a mulch of sweet, rather strawy, material, a couple of inches thickness sufficing, and, being dry, it will prevent too much moisture arising, whilst keeping the soil moist. Muscat of Alexandria is liable to have the upper berries of the bunches scorched by the sun when the Grapes are ripening, which is due to the sun acting powerfully on the epidermis, whilst, perhaps, though imperceptibly, covered with moisture. As a safeguard against scorching, a slight shade should be provided, ventilating early, and increasing the air with advancing sun heat, but allowing a high temperature by that means. A little more time is required with the shade, but it well repays the outlay, as the losses from scorched Grapes are sometimes considerable where the panes of glass are large, and when the weather is bright.

MUSCATS IN FLOWER set freely with a night temperature of 65deg to 70deg, 75deg by day, and 80deg to 85deg or 90deg with sun heat, always with a circulation of air. The points of the bunches should be kept well up to the light. When the caps of the flowers are being cast, it is advisable to tap the bunches lightly, better still to gently go over each bunch with a camel's-hair brush, and follow soon afterwards, or when the caps are off, with another brush laden with pollen taken from such free-setting varieties as Black Hamburgh, Foster's Seedling, and Alicante; the influence of foreign pollen is far more potent, and secures finer berries, than impregnation of a variety of Grape or other fruit with its own pollen, which is often inert from continued in-and-in breeding.

SUCCESSION HOUSES.—Follow up the thinning of the bunches and berries, also tying, disbudding, stopping, and regulating the growths. Allow crops proportionate to the vigour of the Vines, and retain as much foliage as can have full exposure to light. Examine the borders at least once weekly, and when dry water freely, assisting those in full foliage and carrying heavy crops with tepid liquid manure or top-dressings of fertilisers, washed in moderately, mulching with an inch or two thickness of rather lumpy, sweet manure. Well-drained inside borders will take almost any amount of water after the Vines are in full foliage, it having a hygienic as well as a moisture-supplying effect. Excessive watering, however, causes a soddened and sour condition of the soil, which commonly results in shanking and bad finish. Ventilate early; it assists accumulated moisture to disperse, gives texture to the foliage and firmness to the wood, besides securing a full amount of stored matter. Allow a high, dry temperature from sun heat, closing early, alike to push ahead the crop, and to store the sun-warmed atmosphere. At night a temperature of 60deg to 65deg is best, especially for Vines carrying heavy crops.

LATE HOUSES.—Disbudding, also tying and stopping of the growths, must be attended to as they become sufficiently advanced. Every advantage of sun heat should be taken to increase the ventilation early in the day, and of closing early in the afternoon, as a means of securing a long day's work, and of

vigour and health in the Vines, dispensing with fire heat as much as possible, yet employing enough to keep the Vines in steady progress. Make selection of the bunches that are to remain for the crop, large ones, especially loose, being the worst for finish, and the medium-sized and compact the best for perfecting properly and keeping. Crop lightly rather than heavily, and apportion the crop to the vigour and variety of the Vine.

LATE HAMBURGHES.—These and other summer Grapes will have started naturally, and require disbudding, tying down, and regulating, not leaving more growths than can have space for the full expansion of the foliage. In stopping, allow two, preferably four, joints of growth beyond the show of fruit, and pinch the laterals below it to one joint as made, but above the bunches allow them to extend, so as to insure an equal covering of the space with foliage that can have full exposure to light; afterwards keep them pinched to one leaf as new growth is made. Where the space is restricted, closer stopping may be practised, not allowing the laterals to interfere with the principal leaves. Ventilate early and freely so as to insure short-jointed, stout wood, and thick, leathery foliage. Avoid a saturated condition of the atmosphere, yet a genial state must be provided by syringing the borders, walls, and paths in the morning and at closing time. Have the borders properly moist, yet avoid saturating them; and encourage surface roots by a light mulching of lumpy material.—G. A., St. Albans, Herts.

The Flower Garden.

HARDY ANNUALS FOR CUTTING.—Some of the most useful species of hardy annuals are very useful for affording cut flowers during the period of their blooming. For this purpose sow them in beds in the kitchen garden, or they may in many instances serve the double purpose of decorating the garden and providing material for cutting. There is a good range of different varieties among the annual Chrysanthemums, including Morning Star, Carinatum, Coronarium, Dunnetti, Inodorum plenissimum, and Segetum grandiflorum. A good strain of Coreopsis grandiflora will be exceptionally useful for cutting, but this variety is not strictly a hardy annual. The hardier varieties which may be sown outdoors are the dwarf mixed Coreopsis, which include crimson, yellow, and brown flowers. The taller varieties, Drummondii, tinctoria, atro-sanguinea and marmorata, are real acquisitions for cutting. Cornflowers are sure to be appreciated, especially the blue variety. A mixture of Sweet Sultans should be grown. They remain fresh when cut for a considerable time. Mignonette is indispensable, and a good breadth should be sown, well thinning the plants as they increase in size, so as to obtain good spikes of bloom. Sweet Peas sown now will follow the earlier sowings, and come in useful late. There should be no lack of these now popular flowers. Nasturtiums are very pretty for cutting and mixing in with choicer flowers.

PLANTING DAHLIAS.—Dahlia roots which are starting growth may be planted now. Too large clumps of roots may be divided, securing a portion of the growth to each, and removing some of the large, coarse tubers. Plant in well-prepared ground, not made over-rich with manure. The growths may be further thinned out as they are produced.

HARDENING BEDDING PLANTS.—All plants intended for filling flower beds, whether in boxes or pots, and sufficiently advanced in size, may now be placed in cold frames. Protect until they have become used to the changed conditions, then gradually inure to more air, fully exposing on fine days, and subsequently altogether when danger of frost is past.

SOWING WALLFLOWERS.—A liberal sowing of seed of the best varieties, including yellow, brown, dark red, and choice mixed, ought to be made now, as it is not too early to sow to obtain good plants of dwarf and bushy habit. Prepare a piece of open ground of a fertile and friable character, breaking down the surface to a fine tilth. If the weather is dry give a watering, and then sow a square yard or so of each colour moderately thinly broadcast, and cover with fine soil. Shade and water in hot, dry weather until the seed germinates, and maintain the seedlings moist afterwards. As they advance in size thin out the most crowded patches, so that the majority will be in a sturdy condition for planting out in nursery beds later on.

SWEET VIOLETS.—Offsets from old plants which have now done flowering, may be detached and lifted from the ground with any soil which may adhere to the roots. For planting choose a partially shaded position, and work into the soil some rotted manure and good leaf soil. Plant the offsets 9in apart in rows a foot asunder. Water frequently, and hoe between the plants to keep down weeds, continuing this throughout the summer. Runners will start from the offsets, but these must be cut off as they appear to prevent the main plants being robbed of support. Syringing the plants on warm evenings will greatly assist in keeping down red spider, which frequently attacks Violets.—E. D. S., Gravesend.

THE BEE-KEEPER.

Building up Colonies.

A decidedly useful operation in spring, if carefully and judiciously performed, is to stimulate the bees to gradually extend the brood nest as much as they can comfortably cover. On examining a hive in the early part of the year, where the bars are end on to the entrance (not parallel with the hive front) it will be found that the brood nest is at the front and the honey at the back of the combs. This is due to the instinct of the bees prompting them to store the honey where there is the least probability of robbers obtaining it. The pillagers would not only have to pass the sentinels at the entrance, but also all the bees on the thickly covered combs.

If, therefore, advantage is taken of this instinct to alter the position of the food by turning a bar rear end foremost, the first thing they would do would be to re-arrange it in an exactly similar manner if possible, by uncapping, and placing the honey in any vacant cells at the back, or close around the brood. No more effective stimulation can be given than by causing them to transfer their stores to another portion of the hive; it is equal to a honey flow for stimulation, and there is the further advantage, that, instead of the brood nest being in small patches on many combs, it is, if the colony is properly dummied up, extended over the whole of the central combs, and is therefore more compact.

Closer examination of the hive will reveal hatching brood also; in a circle around this, larvæ, and, still further away from the larvæ, eggs. When the eggs are laid outside the globular brood nest, any additional room should be given next to the outside bar of brood. In extending, extra combs should be placed where, in the ordinary course of events, the queen will lay next; and in stimulating a colony to extend its patch of brood, the bee-keeper must pay particular attention to contracting by dummies, especially with weak stocks, as any fall in the external temperature will cause a cluster of bees to contract, and during cold, unfavourable weather they will leave the outside combs and form a compact mass in the centre of the hive. Should the colony be strong, the stores may be displaced by turning one or two of the combs with brood in them back to front, and as the cells are emptied the queen fills them with eggs. The body box may be returned to its original position in a few weeks, when the addition to the population by hatching brood will make it perfectly safe.

To still further assist a weak stock, the bars may be spaced $1\frac{1}{4}$ in from centre to centre.

This will enable the bees to nurse more brood, and at the same time increase the capacity of the brood nest. As well as dummied tightly, it is an advantage to feed slowly, and when sufficient bees have hatched to cluster against the dummy, and the last comb is sealed, another may be placed next to the dummy, which, as soon as they are numerous enough to cover, they will commence drawing out. The best time for carrying out these operations is when there is a probability of settled warm nights, and when the birth rate is well in excess of the death rate. The heat of the cluster must always be conserved by additional quilts and packing whenever brood is desired, and stimulative feeding is in progress, as it will be found in most cases, where too many bars are allowed for the number of bees, that they are only able to protect a very small patch of brood at the top of each bar, whereas, by dummied, &c., they have less space to heat, and consequently more eggs are laid.—E. E., Sandbach.

Meteorological Observations at Wisley, Surrey.

Taken in the Royal Horticultural Society's Gardens—height above sea level, 150 feet.

Date.	Temperature of the Air.				Lowest Temperature on Grass.	Temperature of the Soil. At 9 A.M.			Rain.	Wind.		Sunshine.
	At 9 A.M.		Day.	Night		At 1-ft. deep	At 2-ft. deep	At 4-ft. deep		Direction.	Total velocity for the 24 hours ending 9 a.m.	
1904.	Dry Bulb.	Wet Bulb.	Highest	Lowest								
Sun. 24	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	Ins.		Miles.	h. m.
Mon. 25	42	48	61	44	33	49	48	47	—	N.W.	150	3 16
Tues. 26	47	42	55	42	33	49	49	47	—	N.W.	126	9 50
Wed. 27	47	41	51	34	25	48	49	47	0.01	W.	147	3 47
Thurs. 28	40	45	57	39	29	47	48	48	—	N.W.	168	7 27
Fri. 29	52	49	58	44	37	49	49	48	—	S.W.	256	0 23
Sat. 30	53	50	56	49	45	50	49	48	0.09	W.	273	0 0
	53	51	65	50	47	50	49	48	—	S.W.	134	0 4
MEANS	51	47	57	43	35	49	49	48	0.10	—	179	3 32

TO CORRESPONDENTS

* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

NEWSPAPER WANTED (H. B.).—We have handed your letter to the party you desire to hear from.

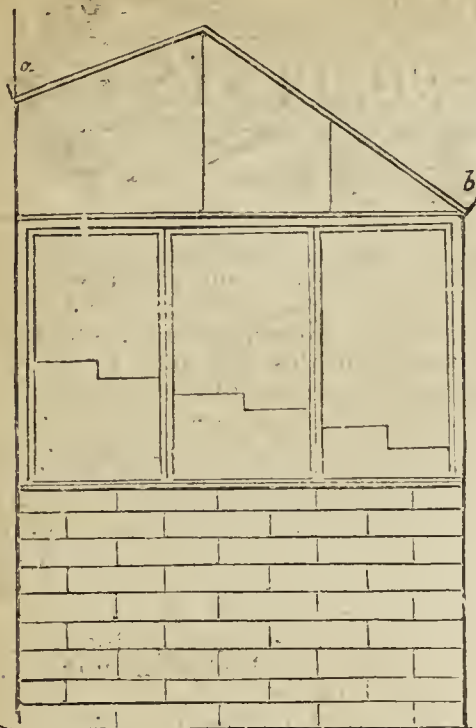
AMARYLLIS CULTURE (J. E. Hall).—Our latest extended article on Amaryllis (*Hippeastrum*) culture was in March, 1901, and our publisher informs us that copies for that particular date are out of print. We shall endeavour to meet your wants, however, by publishing an article.

ORANGE FUNGUS ON PERSIAN BRIAR (M. L. G.).—Your Rose is badly infested with the Orange fungus (*Coleosporium pingue*). There seems to be no remedy short of cutting off the affected leaves and shoots. At the same time the rust does little or no harm, and is looked upon as a minor evil. Still, it ought to be reduced if possible.

SENDING HOME ORCHIDS (C.).—The chief matter to be observed in sending home orchids is that the plants should have mature growth, and no young growths in progress. With evergreen Phaius and similar plants, it would not be detrimental to remove the foliage. If properly matured plants are selected, they may be placed in boxes of moderate size, either without any packing material, and with a few struts across at intervals during the packing; or with a very small amount of dry shavings, or paper cuttings. We would not advise you to import leaf soil for orchids.

BERRIES OF BLACK HAMBURG GRAPES SPOTTED (Nemo).—The berries are affected by the disease known as "spot," which appears in two forms or at two stages of the Grapes swelling. The first occurs as a small, uneven, whitish spot on the berries while young, tender, and swelling freely. The spot is mostly confined to one side or upper part of the berry, as if it had been bruised in some way, and the spot becomes brown as the pulp beneath dries up, and a sort of contraction occurs, the berry soon assuming an irregular, one-sided form. On the depressed patches a series of minute dots sometimes, not always, shortly afterwards appear, and under the microscope they prove to be a fungus, *Gloeosporium laticolor*, which grows outwards, and its mycelial threads traverse the interior of the fruit. This is the form with which your berries are affected, and has been culturally attributed to sudden chills, such as admitting air too freely and too late on a sunny morning or after a period of sunless weather, during which the house has been kept very close and moist. The preventive, therefore, is careful attention to the ventilation, and the only remedy is to cut out the affected berries and burn them, afterwards affording free ventilation, especially early in the morning, effecting a circulation of air by a gentle warmth in the hot-water pipes with a "crack" of air constantly in damp periods. The other form of "spot" affects ripening Grapes, and is avoided by a similar means of free ventilation and a circulation of air constantly. The affection on the leaves accords with scorching, but may be due to a slight attack of Grape rot, *Gloeosporium ampelophagum*, though we have not found evidence of its "fruits." The use of Campbell's sulphur vaporiser will no doubt act beneficially in arresting the disease and in preventing attack, but we should not omit giving particular attention to the ventilation.

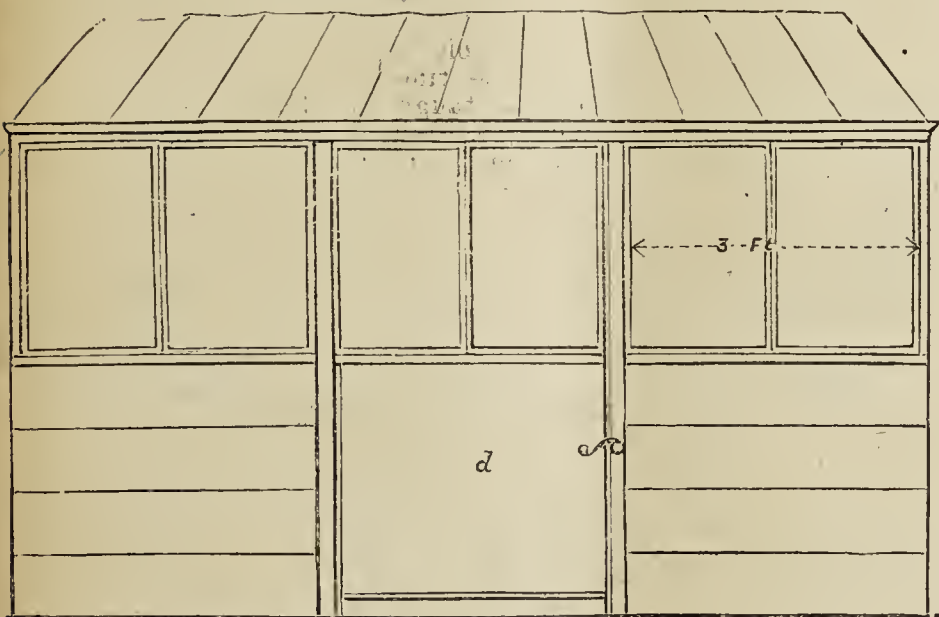
FIG LEAVES BROWNED (Idem).—The brownness is caused by a fungus closely allied to the Cucumber and Melon leaf-spot, *Cercospora melonis*, and has been given the name *Cercospora Bolleana*. It is probably induced or favoured by a close moist atmosphere, the condition of the affected tree in consequence of being grown against the back wall of the vinery being particularly favourable to the fungus, and very unsuitable for the Fig tree in fruiting, the shade of the Vines not allowing of the firm texture of leaves and wood essential for fruit production, and the resistance of parasitic infections. We should remove and burn the Fig tree, though, if this may not be, try spraying with weak Bordeaux mixture. Probably the sulphur vaporisation would have a good effect on this fungus, as well as on that of the Grapes.



END VIEW.

A SMALL GLASS HOUSE (Amateur).—For such a plain glass house as you suggest, we think the diagrams that accompany this may be of some assistance. Of course the dimensions could be increased, though still preserving the model. A very few bricks will be necessary, and the boarding should be well-seasoned deal. Use stout 18oz. or 21oz British glass for glazing.

a, gutter at back wall; *b*, gutter in front; *d*, door. Height to apex of roof, 7ft 8in. Height in front, 8ft. Height of front boarding and end brickwork, 3ft. Height of front sashes, 3ft; length, 10ft; width, 4ft. 8in.



FRONT VIEW.

APPLICATION OF GAS LIME (Nemo).—Gas lime is not a manure. It acts as a sweetener or purifier of sour soil; it kills moulds of fungus, such, for instance, as produces club in Cabbages; and it destroys grub, wireworm, and other insect life. If you think insects, grubs, or eggs are wintering in the soil about your fruit trees, a dressing of the lime, 1lb to the square yard, well broken up and allowed to lie two or three weeks before being worked in, may do good. But as your trees have been recently root-pruned, follow in May with a surface of half-decayed manure as a summer mulch and to wash in. You can apply gas lime at once to any vacant ground if it is sour or needs some agency to destroy fungoid or insect life. If not, then it will do no good. A proper dressing is at the rate of two bushels to three rods of ground, allowed to lie for a month, well pulverised, then dug in. It does not help poor ground, which would be helped by a manure dressing. Apply superphosphate and kainit (potash), and dig it in, at the rate of 6lb per rod, in January, and 3lb per rod of sulphate ammonia after the crop has made partial growth.

NITRATE AND SUPERPHOSPHATE (F.).—Please let me know if nitrate of soda or sulphate of ammonia can be mixed with superphosphate without causing a chemical change. To use nitrate of soda for the Turnip crops, can it be better applied than putting it in with the seed?—[Sulphate of ammonia may be safely enough mixed with the superphosphate, but it is not safe to mix nitrate of soda with superphosphate unless the mixing be done very shortly before application. When nitrate of soda is mixed with superphosphate the sulphuric acid in the superphosphate combines with the soda in the nitrate, and the nitric acid is liberated, and passes off in the form of a poisonous gas. It is not desirable to apply nitrate until the roots of the crops are ready to take it up, as it is very apt to be washed out of the soil by rains. In the case of manuring the Turnip crop, it is no doubt desirable to give a little nitrate at time of seeding, in order to push the plants forward beyond the reach of the "fly," but the main part of the nitrate dressing should be applied after the plants have been singled and ready for "furring up."]

AMERICAN AGRICULTURAL BULLETINS (V. M.).—These are published by the various experimental stations, and may be obtained through Putnam's Sons, American publishers, London.

DESTROYING EARTHWORMS (Subscriber).—Apply broadcast one bushel of unleached hardwood ashes to each 400 square feet. If spread upon the surface, the potash will be carried into the soil in watering, but it will be better to fork it evenly in the soil to the depth of 4in. If to be worked in deeper than this, the amount should be increased. Saturating the soil with lime water, or the use of 15lb of kainit in 400 square feet are other remedies.

ABIES LOSING LEAVES (Hortus).—The branch is affected by the disease known as defoliation, and chiefly prevails on *Abies excelsa*, *A. pinsapo*, *A. Nordmanniana*, and *A. Douglasi*. The defoliation results from the injury done by a minute and inconspicuous fungus, called *Oospora abietum*. A single row of minute greenish-grey, fluffy tufts on each side of the nerve, and on both surfaces of the leaf, come to the surface through the stomata; the delicate hyphae composing these tufts produce minute, colourless, elliptical conidia, which, being scattered by wind or rain, alight on other healthy leaves and spread the disease. The disease is most prevalent during a wet season, the affected leaves falling off, and sometimes almost entirely defoliating the branches. It does not, however, appear to affect the wood, and the trees usually grow out of the disease. The only preventive means advised is collecting all fallen leaves and burning them. Possibly spraying with ammoniacal carbonate of copper solution would arrest and prevent the spreading of the disease. This preparation does not disfigure the trees, as is the case with dilute Bordeaux mixture.

BIRDS' EGGS' PRESERVATION (Idem).—In forming a collection of birds' eggs, it is necessary that they be what is known as "blown," that is, be emptied of their contents, at least, such is the general practice; but there may be other means, though we are not acquainted with them. Puncture each end of the egg, and blow out the contents.

NAMES OF FRUITS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (C. E.).—Apple, Strawberry Norman.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (R. W. C.).—*Sprekelia* (or *Amaryllis*) *formosissima*. (Hortus).—*Muehlenbachia platyclada*. (M. L. G.).—A form of *Anemone fulgens*. (J. T.).—1, *Scilla amœna*; 2, *Corydalis nobilis*; 3, *Saxifraga Sibthorpi*; 4, *Arnebia echioides*. (N. F.).—*Saxifraga cordifolia atro-purpurea*. (N. J.).—1, *Amelanchier canadensis*; 2, *Erica Tetralix*; 3, *E. arborea*. (B. B.).—*Kerria japonica fl.-pl.*

Trade Catalogues Received.

Clibran and Son, 10 and 12, Market Street, Manchester.—*Plants*.
M. V. Seale, The Nurseries, Sevenoaks.—*Dahlias and Bedding Plants*.
James Stredwick and Son, Silverhill Park, St. Leonards-on-Sea.—*Dahlias*.



Faults in Farming.

This is the title of a series of articles which have been appearing weekly in a well-known agricultural organ. We do not know the writer, but this may only be a proof of our isolated ignorance. We, as a body, are so used to castigation, and to being told that we do not understand our business, that we are a little hardened and stiff-necked towards reproof. In the first instance this gentleman doubts very much whether farmers, as a body, are in any manner of distress. He bases his argument on the fact that he finds few names of farmers in the list of bankrupts. This he never will do, for it is only an odd farmer that does not get pulled up before that point, either by his landlord or some of his tradespeople, notably the seed merchant, the cake dealer, or manure manufacturer. The farmer who is worsted in the fight generally keeps things quiet, gives up, and his stock, crop, and valuation go to pay all outstanding

liabilities. He is clear of debt, but penniless. There is no public exposure; no sensational smash; and the ruin is confined to one family. The farmer is enough of a gentleman to prefer to be himself the chief sufferer.

The writer considers that a farmer must not grumble if he is laying nothing by, but as compensation must remember what a pleasant, wholesome life he leads! This is but poor consolation, and very unsound doctrine to our idea. That there are some farmers "sitting tight in snug holdings," we know; but the pity of it is there are not more. Yet this can never be universal till all farms are made up of equally good sound land within reasonable reach of a market.

Then, again, our Mentor finds cause for rejoicing in the numbers of young city men who are anxious and willing to enter the farmer's life. They expect, after a year's experience on a farm, to become so expert as to undertake a farm's management themselves; or they attend a few sessions at an agricultural college with the same end in view. There is one very significant sentence: "Some attempt should be made as soon as possible to collect an account of the fortunes of this class of men since they left the premium farmer and set up for themselves."

We could fill in that information in a manner which would astonish our readers. We believe that at the training colleges these young men are made to work, and that pretty thoroughly; and that there is a chance for such students, if not overfilled with conceit, to make some sort of a living, provided they have capital at their back, but of the farmer's pupil we have but a poor opinion. The average student does not come to the farmer taking a very serious view of life. He is quite ready for all the pleasures of a farmer's life, but the rough side does not appeal to him; and, indeed, one or two pupils under a farmer, unless he is much of a martinet, have an uncommonly good time of it. The farmer has not been trained to teach; and the lads are of that age when they won't brook much interference; and with the best and most diligent of them, there will be a need for three or four years' training and close application if they are to make anything of a living out of the land.

Then our mentor points out what we know quite well, that there is a lack of suitable cottage accommodation on the farms. Well, this is a question of money, and if landlords are to build cottages on the pattern supplied by mentor, the final nail will be driven into their coffin. Cottages have been built, and scores of them, good ones, too, and to what purpose? Not as homes for workmen; for they are empty. We know ourselves of model cottages and capital gardens in villages where employment is regular and wages excellent, for which tenants cannot be found. Why, then, build more?

As to making the cottages so large, Mr. Clare Sewell Nead hits on one difficulty that springs up at once. The accommodation is supposed to be for the man, his wife, and family, that they may live decently. Well, what are the facts of the case? The third bedroom is used, not for the family, but to increase the family's revenue by means of a lodger! That is quite outside the original purpose. And again, we do object to the practice so common in some places of keeping the grown-up children at home: the lads at catch work or mischief; the lasses at dressmaking (save the mark!) or some other equally ill-learned, ill-paid occupation. If the landlord can find money for many and big cottages, he is obliged to charge the tenant with some sort of interest on the money expended. Cottages won't save the situation; and as for the water supply, which our mentor speaks of as constantly lacking, in our experience the rural medical officer of health is generally pretty much on the alert, and does not let the owner rest till water privileges are secured.

Now, then, we come to uncovered yards. We should like to know where this writer resides, for in our parts the uncovered yard is the exception rather than the rule. We think there is not such an escape of liquid manure as he would have us believe. Yards are properly littered, and all is absorbed. Really, even if there were much escaping, we doubt whether the catching of it and distribution on the land would be worth the expense. If it could easily be drained on to some pasture, a few roods might be irrigated. It would require thousands of gallons to irrigate a whole field. All these little fads and fancies have been tried, and costly apparatus prepared by enthusiasts, but the return has not been worth the trouble. There are still places where the difficulty of getting rid of the straw is experienced, and we think that even in open yards the majority of stock is made pretty comfortable. Yards are not constructed without abundance of wide, deep, shedding, where cattle can always be dry and warm.

We thoroughly believe in draining, and the general improvement of land; but it must be land that will pay for the outlay. Mr. Clare Sewell Nead says (and he knows if anybody knows), that during the good years, 1855 to 1875, gigantic improvements were made by both landlords and tenants, but now neither class has the money to spend. Early in last century much land was enclosed and reclaimed; but almost all

this capital was expended upon naturally good land, and that which has been reclaimed later is land upon which the money has been absolutely thrown away. The best drainage on the cold clays is only of very fleeting duration, and the last state is worse than the first. No amount of draining will alter the natural character of the land: clay it is, and clay it will remain.

Mentor hits on one great truth, but we have most of us found it out some time since, and that is, not to make our drains too deep. The old idea of drains 4ft deep is quite exploded; 2ft is ample. The deeper you go the more money you bury. As for thousands of acres lying dormant in England to-day for want of draining, the thing on the face of it is ridiculous. If wheat go up in price to, say, 60s. or so, the question might be entertained; for it is on these strong clay lands that wheat and practically little else will grow; but when wheat, as at present, cannot be made to pay on good land, it is hardly likely that farmers (fools though they are, according to many) will embark on enterprises which are perfectly hopeless.

As for the sin of cheapness with which we are charged, we fear we must in a measure plead guilty; but the fact is, that money and credit both being scarce, we are obliged to do what we can with the means at our disposal. Given a little more capital we would not only buy and breed from pedigree stock, but we would have the best of seeds, the best of manures, and, above all, the best of agricultural education for our sons. On this matter of education we are a little diffident. Perhaps we are not in a position to speak with authority; but we are not quite sure as to whether our teachers know themselves what we had better learn. Till they have settled this question satisfactorily, we are a little bit inclined to hold back. We heard the other day that the time is considered ripe when agricultural pupils should be taught to differentiate between the various breeds of stock. A young man may be chokeful of science, and know exactly how, and why, and when to apply certain manures; but he looks a bit of a fool if he cannot distinguish a Shorthorn from a Hereford; a Cleveland Bay from a Suffolk; a Hampshire-down from a Leicester; and a Lincoln long-wool from a Romney Marsh! We heard of one promising student quite lately, who was perfectly at a loss when asked to name the seed of the common tare or vetch. We should have thought that was a thing the proverbial schoolboy knew.

Just one word and we have done. Mentor thinks it necessary to instruct us as to the benefits arising from change of seed-corn. If there is one thing that even every small holder sees to, it is this. The initial expense is not great, and the man who is not fully alive to his own interest in this particular, is certainly not to be found in any of the many agricultural counties that have come within the range of our personal knowledge. Surely the time has arrived when farmers no longer need instruction and advice from fussy amateurs.

Work on the Home Farm.

We have enjoyed another fine week without frost, and, except for the state of the wheat crop, can express satisfaction as regards the year's prospects; not that the promise is very great, but it is much better than appeared possible a month or two ago.

Although planting has not long been completed, we have already begun to harrow the potato ridges. We had purposely avoided working the land fine before, for we have frequently expressed the view that on any but the most sandy soils it must be kept rough until the proper time for earthing up. Soil aëration is absolutely necessary to the well-being of the young potato plant. Having left the ridges in a tolerably rough state, we can now commence to harrow without any fear of getting a fine mould too soon. We give one good harrowing, and leave the next until just before the sprouts appear. We have to-day seen potatoes planted under difficulties indeed. The ridges were so rough as to be impossible to split, so the sets were being covered up by the aid of ox harrows. All appeared to be well covered, and we have little doubt that the planter, if he takes full advantage of future opportunities for cultivation, will obtain a very fine crop.

As pastures grow, the price of store stock increases, and this is especially noticeable just now in the case of sheep. A half-meated hog is worth as much in the store market as one with the same frame, and 8lb or 10lb more mutton on it. Mutton is not cheap, but store hogs are very dear. Using cake to make stores fat when you can buy them ready fed at the same price must be a losing game. It is every day becoming more apparent that it is in breeding that the profit lies, both as regards sheep and cattle.

We read an argument by an authority in favour of corn, because cattle feeding leaves no return. Surely, if a £2 calf can be transformed into a £20 bullock in twenty-four months, there must be a return after cake and labour are paid for? Pigs are such a drug that now appears to be the time to start breeding. Gilts purchased now and sent to the boar would farrow in August, and the litters would be ready to sell at the right time, viz., in November and December.



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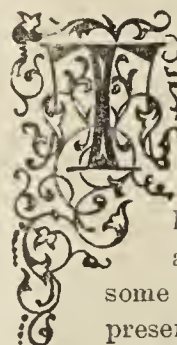


Journal of Horticulture.

THURSDAY, MAY 12, 1904.

Among the Hardy Flowers.

Thickly strewn in woodland bowers,
Anemones their stars unfold;
Then spring the Sorrel's veined flowers,
And, rich in vegetable gold,
From calyx pale, the freckled Cowslip born,
Receives in amber cups the fragrant dews of morn.



THUS sings one of the minor poets of the flowers which Dame Nature displays to our delighted eyes as we wander the country through to catch a sight of the beauty of her wildest ways. Lavish, however, as is the natural floral beauty in some favoured spots, it is faint to that presented by the garden where early hardy flowers are cherished and cared for in their several wants. The scene is gay with colour. Bright flowerets meet the eye at every turn, and quaint forms and equally delightful and interesting foliage-tints appeal to our sense of the beautiful as we roam among the flowers and study their several characters. We are not yet in the flush of early summer; for early spring yet lingers, and a relapse into a colder time retards some flowers for a time.

The earliest Narcissi have already gone, but there are yet some left. Soon the brighter hues of the trumpet Daffodils and the colouring of the most of the other sections will have departed, and we shall be rejoicing only in the Poets' Narcissus in its best forms. And how lovely these are only the lover of the Narcissus can tell. Of loveliest white, and brightened by the saffron or scarlet ring, or, in some of the best new flowers, by the scarlet cup, they are truly fascinating.

Then the march of the Tulip has long begun, and we are now in the full enjoyment of these battalions of stalwart and erect flowers of May. One cannot but admire almost all the Tulips, whether they be the most insignificant of the species; the most noble of these, the old Cottage Tulips, the early Dutch Tulips, or the stalwart "English" Tulips, which bear emblazoned on their blooms the marks of their ancient lineage.

Then there are many of the "beaded and

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bossed" flowers of the Grape Hyacinth or Muscari, ranging through deep black-purple, the fine blue of Heavenly Blue, the pale blue of Muscari botryoides pallidus, to the pure white form known as albus major, or the pink of racemosum carneum, and all delightful with their conical blooms. With them come still more of the Scillas, although the forms of *S. bifolia* and *S. sibirica* have just passed to their rest; for have we not the glorious spikes of the best of the forms of the Spanish Squill, *Scilla campanulata*, and the old-fashioned *S. lilio-hyacinthus*, with the pretty little conical spikes of the Italian Squill, *S. italica*? Then there is *S. amœnula*, a species hardly ever seen nowadays in its true form.

The purple or blue and gold of the netted Iris have passed away, but other species take up the tale. Here are the pleasing flowers of *Iris orchoides* on their varnished-like plants, and there the delightful *I. bucharica*, more cherished by the lover of novelties, with its cream and yellow flowers, touched with brown streaks on the falls. There is the delightful *I. warleyensis*, another of the same group, with pale purplish blue flowers, with a yellow spot on the falls, almost encircled by a deep violet patch. Only those who know these April and May flowering Irises can appraise them at their true value. And *Fritillarias* galore!—quaint flowers, growing slowly in interest with the many, it may be, but all the same, worthy of more attention than they yet receive.

If the woodlands have their Anemones, so, too, has the garden. We seem to have ransacked the woods for their best forms, and to have touched them with the gardener's art to make them more charming still. Here is the delicate colouring of *A. nemorosa* Robinsoniana, coloured with the pigment which makes delightful some of our most beautiful skies; here its chaste offspring, White Queen. There is the fine *Alleni*, another scion of this fine plant, while other delightful forms of our own Wood Anemone are *cœrulea*, *purpurea*, Blue Queen, the later Blue Bonnet, the fine old double *A. n. plena*, and the delightfully quaint *A. n. bracteata*, with its "Jack-in-the-Green" like flowers.

Sheets of single and double Arabis, snow-like in appearance, glisten everywhere, but soon to seem almost creamy in comparison with some of the Iberises, fast covering themselves with still more snowy flowers. More and more delightful grow the Aubrietias, as we gradually acquire new shades of colour among these charming flowers. If we look here, we come across a fine sheet of *A. Dr. Mules*, a lovely, deep-coloured form, which does just honour to the name it bears. Lighter, again, is Lilac Queen; while Bridesmaid is one of the most exquisite, with its blush-pink flowers. There is the brilliant Fire King, with deep and warm rosy-red flowers; while everywhere, in border, on rockery, or depending in three-foot trails from an old wall, are many others, some named, and others seedlings not a whit less beautiful, though they are still under the veil of anonymity.

But one could ramble on long among the Primulas, the Primroses, the Polyanthus, the Androsaces, the Forget-me-nots, the Violets, the Violas, the Cardamines, the Ericas, and the many more which shine from the border or the rockeries. Even the sweet old Wallflower would call for a word of greeting could we spare it now. Then there are shrubs in flower or coming on. What can we not say of the golden Forsythias, the glorious Rhododendron, the creamy *Cytisus præcox*, and others which come to give us pleasure in these narrow bounds? One often thinks that Thomson might not only have called the season "fair-handed spring," but also "free-handed" spring, for she is generous, nay, almost prodigal, of her floral bounties. No pleasures of the garden are greater than those she yields to the true-hearted lover of the flower.—S. ARNOTT.

A New Adiantum—A. Croweanum.

The following is the introducer's description: A free grower, the darkest green of the Adiantum family and longest stemmed. It has also the most graceful foliage; the average length of the fronds measuring 30in. It is by far the best keeper. Cut fronds can be kept fresh several weeks in a cool place. It is also one of the best ferns for a dwelling-house. I have given presents of this fern to several friends, and from my own observation note it grows better than the Boston fern. I gave up Rose cultivation some ten months ago in order to devote all my attention to fern cultivation for cut fronds. I find from the same amount of bench room this fern pays me \$1.50 to every \$1.00 obtained from Roses.—PETER CROWE.

Herbs.

Many are ignorant of the usefulness of most of the plants which come under this heading; indeed, it is in very few gardens that we find a small space set aside for the cultivation of even the commonest of herbs. Anyone who has had need of some necessary herb will know how difficult they are to obtain, and how many gardens had to be searched before the required article could be found. This should not be so. Every housekeeper and cook who has the privilege of picking from a herb bed will testify to its value in supplying her wants during the summer, and providing dried herbs for the winter. Very little ground will be taken up, in some kinds only sufficient space for one or two plants being all that is required.

To prepare them for winter use they should be cut when in full bloom, and hung up in paper bags to dry, when the leaves may be rubbed into powder and put in bottles, where, if corked tightly, they will keep good for a long time. Many of them are perennials, plants of which may be purchased during the autumn and a bed formed. Of the various uses to which they may be put, a description will not be out of place, as it will enable those intending to cultivate a few to make a selection of varieties that will best suit their requirements. The following perennials may be propagated by division of roots:—

Angelica.—Used for flavouring confectionery and liquors; is sometimes blanched and eaten like Celery.

Balm.—The leaves possess an aromatic odour, and are sometimes used in making claret-cup. It is also, in the form of tea, an old-fashioned cure for colds, and the young shoots are used in salads.

Burnet.—The leaves, used for flavouring soups, salads, and wines, have a cucumber-like taste, and a similar cooling effect.

Chamomile.—The flowers of this are used in the preparation of a tonic. **Caraway.**—Seeds of this are used in the distillation of spirits, for medicinal purposes, and in confectionery are put to many uses. Its leaves are also used for flavouring soups. **Cumin.**—Grown for its aromatic seeds, which are used for various culinary purposes.

Fennel.—All parts of this herb are put to some use, the stalk being used in salads, the leaves for sauces and garnishing, the seeds producing an essence for flavouring confectionery.

Horchound.—Popular as a remedy for cough and asthma, it has also valuable tonic and laxative properties. **Hyssop.**—An evergreen shrub, the shoots and flowers of which are used medicinally as an expectorant. **Purslane** is used in salads, soups, and for pickling.

Rosemary.—A popular evergreen used for garnishing. A drink to relieve headache is also made from it. **Rue.**—A most powerful medicinal herb, bitter, and pungent. Is used in a preparation for curing croup in poultry.

Savory, Winter.—Its aromatic tops are used in salads and soups. Also for improving the flavour of Beans and Peas when boiled. **Sorrel.**—Same as Savory. **Skirret** may be eaten like Watercress, and has some medicinal properties. The roots may be cooked, but if required for this purpose it will be best to raise from seed annually.

Tarragon can be forced like Mint. Has a demand for seasoning salads, soups, and for flavouring vinegar. **Wormwood.**—A fine tonic; is also used for giving a bitter flavour to drinks.

Lavender, Mint, Sage, and Thyme it is unnecessary to describe, as they are all well known. The remainder are chiefly annuals or biennials, and may be treated as such, unless it is stated otherwise.

Anise.—Possessing carminative properties, the aromatic seeds are used in medicines. **Basil.**—To be treated as a half-hardy annual. The sweet-scented leaves, having a clove-like flavour, are used for seasoning soups, &c.

Borage.—A most useful herb that may be cooked when young like Spinach. Its leaves and flowers are used for garnishing, for salads, and for giving an aromatic flavour to liquors. As bees show a preference for it, bee-keepers should cultivate it extensively, sowing seeds of it at intervals during the summer. **Clary.**—Leaves of this pot herb used in soups, &c.

Coriander.—Sow at intervals from spring to autumn for use in soups and salads. Seeds used in confections. **Dill.**—A biennial herb, seed of which should be sown as soon as ripe. Used for pickling and flavouring soups and sauces.

Marigold, Pot.—Flowers used for colouring soups, &c. **Rampion.**—Young sprigs and leaves used in salads, soups, and for pickling. **Savory, Summer.**—Same use as Winter Savory. **Scurvy Grass.**—A biennial, used medicinally, or may be eaten like Watercress.—J. W. J., Oswestry.



Dendrobium Thwaitesæ, Veitch's variety.

The parentage of this handsome novelty are the well-known species, to wit, *D. splendidissimum grandiflorum* and *D. Wiganianæ*; and it is a most distinctive flower. The sepals and petals are buff apricot, the edge of the lip the same, with blackish-crimson centre and base. The variety received a first-class certificate of merit when staged by Messrs. J. Veitch and Sons, Ltd., before the Orchid Committee of the Royal Horticultural Society on April 19.

Cultural Notes.

The weather now is proverbially fickle, and the orchid houses need much of watching by day to keep a regular temperature. But even more than by day, the night temperature has a great deal to do with success or otherwise. Orchids of all kinds like a restful state at night, with a decided drop from the day figure, and this must be kept in mind when closing the houses and banking the fires for the night. It is, as a rule fairly easy to tell what the night will be like by about ten p.m., but not always. Sometimes when bright and clear at night, with every appearance of frost before morning, it comes down muggy and dull, with the consequence that, provided the fires were well banked, the temperature will have risen during the night.

This is very bad for the plants, and should be avoided, as it can be by keeping the pipes just warm, and leaving a chink of air on the top of the house, this to be closed in the morning or opened still farther according as the temperature is high or low. Damping round all floors and stages the last thing at night is also very helpful in keeping the atmosphere right, and if, when entering the house in the morning, the moisture can be seen standing on the plants in the form of dew, they will be all the better for it.

Disa grandiflora is now throwing up new growths, and must be kept very cool and moist. This plant is rather awkward to grow, for the reason that, although liking cool, moist conditions, it also needs plenty of air blowing about it, and in summertime it is very difficult to admit air without driving out the moisture. It is too late now to be pulling these plants about at the roots, and any that have not been attended to must be left another season. If the pots or pans are full of crowns and roots, a very free supply of water will be required, but less is needed for newly-potted specimens.

Some of the hybrid *Disas*, especially *D. Veitchi*, are much more satisfactory under cultivation, and grow freely, providing plenty of offsets for propagating and flowering freely annually. But to my mind none are so striking and showy as the above named, and every effort to do it well should be made. *D. racemosa* again is a charming and readily grown species, and anyone having a small compartment of a house or pit could have a very interesting and beautiful collection at a small expense of time and money. Freedom from thrips is a very important phase of their culture.—H. R. R.

Ecclesall Grange, Sheffield.

Though with no pretensions to a "show" place, Ecclesall Grange is one of those delightful spots, charmingly secluded, and surrounded by Nature's beauties, and from its well-kept lawns grand views of the moors and countryside can be seen. On a recent visit here we found Mr. Clarke, the courteous gardener, in the conservatory, surrounded by a wealth of floral beauty at once pleasing and attractive. A grand batch of *Calceolarias* of good form and substance met the eye. They are Fisher's strain, beautifully blotched, and of robust habit. All shades of colour were here, and they make a fine show. In one corner is a *Diplacus glutinosa* with a profusion of orange-tinted flowers, *Azaleas*, *Cinerarias*, and a fine piece of *Dendrobium Paxtoni* is attractive; and there is also a fine collection of *Geraniums*, including Dr. Nansen, Madame Bonderville, Mrs. Julia Creighton, and a host of others. In the Peach house the prospects are decidedly good. In the Rose house there has been a wealth of blooms, and *Hydrangeas* and other plants are now preparing for succession. In the stove the attraction is a very fine *Begonia* (President Carnot?) almost covering one side, and with its large sprays of bright flowers it is a charming and use-

ful acquisition. It is making tremendous growths, and bids fair to entirely cover one side with a profusion of bloom. Here, too, is a wonderfully fine lot of *Eucharis amazonica* in 12in pots, and some exceptionally fine pieces of *Adiantum Farleyense*, better than any I have yet seen in this district. In the fernery, too, can be seen some fine examples of *A. Williamsi*, a grand basket of *A. gracillimum*, and fine pots of other varieties, which would hold their own in the exhibition tent. The vinery is looking well, some good bunches swelling nicely. The frames are all filled with useful stuff for the approaching season. A large batch of tremendous pots of *Imantophyllum Milneri major* is noticeable. This is a variety raised by Mr. Milner, and therefore, of course, a favourite. Outside we notice a fine collection of *Narcissus*, including many of the best varieties, and of Sweet Peas there are some thirty-five varieties being grown. Fruit trees look particularly promising. On the lawn facing the house the beds are gay with wallflowers, Tulips, and other spring-flowering subjects. One noticeable feature here is a splendid specimen *Cedrus*, some 40ft or 50ft in height, and about 40ft in diameter at its base, and evenly furnished from base to point. Near to is a Chestnut avenue, which will shortly form a pleasant retreat. Mrs. Milner, the venerable and esteemed



Dendrobium Thwaitesæ, Veitch's var.

mistress of Ecclesall Grange, may well be fond of its seclusive and pleasant surroundings, and Mr. Clarke must be complimented on the clean and orderly condition of the whole of the grounds under his charge.—W. L.

Blossom-time in the Vale of Evesham.

In one short week the Vale of Evesham has been transformed. The bare trees have burst into leaf and blossom, and the Vale is now almost in its full glory of blossom-time. The blossom, when the sun is shining on it, is not quite so dazzling as in some past years, for the delicate green leaf has appeared before the bloom, but this has pleased the gardener, for the leaf affords some protection against the frosts which yet may come. There are many miles of Plum trees in bloom, and the air is sweet with varied perfumes—above, the Plum blossom; below, acres of Gillyflowers and Narcissi. There is every prospect, says "Jackson's Oxford Journal," of a good fruit crop this year. The bloom is abundant and healthy; and it is late, and so more likely to escape damaging frosts. Last year the trees were in full bloom fully a month earlier, and before this date severe frosts had killed the blossom. Bush fruit is promising, particularly Gooseberries, which are clean and healthy-looking, and free from red spider. The Black Currant trees on some grounds are infested with that mysterious disease known as "big bud," which seems to be spreading in all parts of England. Some gardeners state that the old-fashioned sorts of Black Currants are practically free from this disease, and that it is the taste for much-advertised American varieties which has led to the introduction of so much "big bud" into the country.

Foremen and Journeymen.

It may surprise some of my readers to 'ear that in the establishment where I earns my daily krust there's only one single, solitairy foreman. Not but w'ot the place ain't on a par wi' most others about, 'cos we've got inside fruit and plant departments, a flower garden, pleshure ground, kitchen garden, and so on, and, in order to be quite up-to-date, o' course, there ought to be a foreman for each one o' the above; but our 'ead gardener ain't so mighty gone on foremen as some of 'em are, and he looks arter things hisself, just 'avin' one chap to attend to matters and take responsibility w'en he's away.

Accordin' to my way o' thinkin', too many foremen in a place are apt to get things muddled up rather. I once remember goin' to a place not far from 'ere, to beg a bit o' Parsely, as we 'appened to be short, and th' 'ead gardener worn't about. Well, I interviewed one foreman, and he referred me to another, and 'im to somebody else, till at last I got inter a fair muddle; so I stopped a lad wot didn't seem quite big enuff to 'ave charge of a department, and asked 'im if he could kindly tell me where I should find th' Parsely foreman. He considered a bit to remember which garden the Parsely grewed in, and then took me to a chap as supplied my 'umble needs, and I cleared off, prayin' to the fates that it might niver be my unappy lot to work in a garden where every other man was a foreman.

According to a man as I 'as partiklar respect for—William Shakespeer, late o' Stratford, in the County o' Warwick—I ask, "Wot's in a name?" I've thort several times as th' Bard o' Avon must ha' had garden foremen in his mind w'en he 'rote those theer words, for, acordin' to the gen'ral acceptance o' th' term ('cept in a gardin), a foreman is a chap wot bosses about and sees as others work (this is th' soart o' foremanship as I'm on the look-out for); but theer ain't much o' that wen you have one lad under yer and 'ave to do all th' work yerself, as well as keep yer junior out o' mischief.

Potterin' about th' glass department in a good many gardins (I don't mean a reg'lar beehive o' foremen), you'll find a foreman, a first journeyman, a second ditto, and a juvenile individual, known as the garden lad. To put it in an Irish soart of a way, theer ain't much distinckshon between 'em, and yet theer is. Th' foreman 'as an air of distink supeeriority over th' fust journeyman, 'cos he has to attend to th' requirements o' th' young ladies w'en th' 'ead gardener ain't about, and in th' same way th' first journeyman is a bit 'igher up than the second, while th' latter bosses it over th' garden lad in a manner that sometimes causes th' youngster to resent, and perhaps get 'is 'ead punched for 'is pains.

You'd be surprised 'ow a round o' promoshon alters the bearin' o' these chaps. Supposin' the foreman gets a 'ead place and leaves (he gen'rally 'as to advertise, and do, for a matter of eighteen months afore he gets suited (but he can reckon on it comin' off if he only has patience to wait long enuff), and th' fust journeyman gets 'is place. He ain't th' same chap as he wos afore, and just gives yer a kurt little nod o' recognishion w'en he meets yer in th' village of a Saterdag nite. Likewise, th' second journeyman promoted to fust goes up a number o' pegs in th' estimashion of 'is noble self; but th' greatest change of all is that o' th' garden lad, now livin' in th' bothy and bearin' th' title o' second journeyman, at a salary o' twelve shillins a week. The woollen skarf and corduroys of his pot-washin' days are diskarded for ever, in faver of a 3in collar and cloth trowsers, and he nods good-mornin' to a laborer like myself as though he'd never dined aside of 'im in th' pottin' shed in his life.

Another thing w'ot amuses me is w'en a journeyman leaves to earn fifteen bob a week in another gardin, and comes back to the owd plaice, say twelve months arterwards, to 'ave a look round. Lor, 'ow he does put side on; flips th' ends o' th' plants wi' his stick, and tells yer 'ow they grow 'em where he is. If th' garden lad as he left behind 'im 'appens to be shovin' his arms a long way through the sleeves of his jacket, and thinks he ought to be gettin' on a bit, th' tother one makes 'im more discontented wi' 'is lot by askin' him w'ot he is doin' 'ere all this time, and then, in a real fatherly manner, promises 'im as he'll get 'im a place.

Judgin' by appearances, which, o' course, ain't always th' best o' things to go by, one would think as th' chap was the boss of th' establishment, where praps he has charge of a cucumber frame. I don't say as there's anythin' 'rong wi' youths as do this kind o' thing, but it's a way as the risin' jenerashon o' gardeners 'ave, and they can't 'elp it. I daresay as if I left my native 'eath (as th' poets put it), and travelled abroad to the extent of about fifty miles, I should coom back as big as th' rest of 'em, but I know one thing, it wouldn't be any good o' trying to patretnise my owd woman, 'cos she's got particklar objectsons to that soart o' thing, and bows to none 'cept them as she is pleased to call 'er betters, of which I ain't one.

There is a time w'en I feels real sorry for a foreman, and then I am glad that a kind fate kept me a laborer 'stead o' makin' a full-fledged gardiner on me, as it might 'a' done. Th' same referred to is arter th' chap 'as done a matter o' fifteen

years as a garden lad, journeyman second and fust, and foreman, and summat tells 'im as he's served a pretty fair apprenticeship and might venture on a 'ead place. Ten to one theer's another spirit promptin' of 'im as well, in the shape of a bloomin' young wooman, as is sighin' for a 'ome of her own, so between the two he naturally gets anxious. At first sight it might not seem as if a 'ead place wants a lot o' gettin', but the foreman finds this out as time goes on. He begins by settin' a price on his services, and decides that he'll have such and such a place and no other, but he alters his tune as th' months go by, and th' place doesn't come. He takes a tremendous interest in th' back pages o' th' gardenin' papers where th' advertisements are, and grudginly spends th' money w'ot he is savin' up for furnishin' on lettin' the public know as he wants a place. Weary with waitin', he mite be inclined to throw up the 'ole thing and get off to Canady, but there's that speerit, as I spoke of just now, still promptin' 'im, and p'raps suggestin' as she'd be contented wi' summat smaller for th' sak' o' gettin' that little 'ome as her 'art's fixed on, and one day the chance comes.

Maybe it ain't wot th' chap 'ad in 'is mind w'en he first set out for a 'ead place, but he's ready for anythin' by now, and summat whispers in his ear, "Better take it, lad; p'raps you won't get another." He turns it over in his mind, and sets off agen th' low wage th' perkwisits of 'onse, vegetables, and firin', wi' p'raps milk thrown in, and the end of it is that another foreman becomes a 'ead. If all goes on well, the little 'ome becomes a fact in time, and we learn of it through a small cardboard box as comes to th' garden, containin' a bit o' weddin' cake and an intimashion as there'll be a crumb apiece all round.

Bein' a thinkin' man myself, I turns matters o'er in my mind, and trys to wonder whether, arter all, me, wi' my eighteen bob a week and a tidy little cottage and garden, am much worse off than 'undreds o' 'ead gardiners wi' 'arf as much agen and all th' worry thrown in, but that, o' course, is another story.

Ah, the chaps I've seen pass in and out o' this place in my time; gardin lads, journeymen, and foremen, some good 'uns and some no good at all; some w'ot 'as made their way in th' world, and some as have made nowt on't whatever. Arter all, gardinin's a big lottery, and yer go tumblin' along through th' stages of journeyman and foremanship, never knowin' w'ot it's all goin' to end in till yer gets a 'ead place, and then there's the new anxiety that th' master or missus may die, th' place may change 'ands or th' establishment be reduced, and you'll find yerself, like the Children o' Israel, on the march once more.

—OLD JIM.

Bugs, Beautiful and Otherwise.

Some of our Transatlantic cousins take much freedom in their application of words to objects. Bug, for example, is a name often given to various insects that are very distinct from the bug tribe. Many beetles are called bugs, grubs also of beetles, flies, and other families, caterpillars possibly, though they are more likely to be styled "worms." Properly, bugs are the insects belonging to the old order Hemiptera, chiefly small, and very prolific. The aphid and coccus are bugs, so, too, the unpleasant "cuckoo-spit," which is just about to become manifest.

But the first of the family to receive this name seems to have been the domestic bug. According to some people, it was introduced with timber after the Fire of London, but others surmise an allusion to the insect in books of the sixteenth century. Anyhow, it is not considered to be naturally British. Why was the name applied first to this troublesome species, and then to a tribe of insects? This journal is not the place for word studies, but we must point out what some may not know. It seems funny to read in an old version of the Bible, "Thou shalt not be afraid of any bugs by night." Coming from the Anglo-Saxon *bugg*, it meant an object of terror, especially an hobgoblin. We still speak of a bugbear and bogey. It passed to the insect because this caused alarm. According to some, the bites were thought at first to be signs of a dangerous complaint. Or it may have been from a superstition that the appearance of bugs in numbers was a sign of death in a house.

The fact is obvious that the ordinary food of the bug is not blood, like that of the flea, since the insects have occurred in thousands or millions about old houses and sheds that were untenanted by men or animals, where they must have subsisted upon vegetable juices. It has been suggested bugs might prey upon the mites, which often abound in such places, but this is hardly probable, as they have a sucking apparatus and no jaws. The bed bug is sought out by a predatory relative, the *Reduvius personatus*, which in its larval state disguises itself with a coating of dust. After dark, the brown and yellow mature insect flies about, seizing what small species it can secure, preferring our tormentors. If touched, it gives an odour quite as

unpleasant as theirs, and will drive its beak sharply into the skin. Also it can produce a curious creaking sound.

Formerly all the bugs were united into one family. They are now split into two, distinguished from each other by the structure of the wings and the position of the proboscis. Most of the handsome and brightly tinted bugs belong to the Heterocera, an order containing both aquatic and terrestrial species. Here we find the active water-boatmen, the lanky water-measurers, and the ravenous water-scorpions. A few of the aquatic species are pretty; for example, the brisk little bug *Acanthia saltatoria*, common on marshes, fresh or salt, which has brown and white markings on its round body. What it lives on we do not know. *Velia rivulorum* is rather larger, black, red, and white. It appears to skate over the surface of the water, with an object, doubtless, we presume, to pick up windfalls.

Amongst the garden bugs of this Order we have various species that are both beautiful and useful, but the bulk of them are hurtful to vegetation. In the genus *Reduvius*, already referred to as a foe of the house-bug, are other species busy about gardens seeking prey. They all defend themselves by employing the beak or proboscis to inflict a wound, and though one not infrequently, when wandering, gets into a web, the spider seldom touches it, leaving the bug to escape or struggle till dead. *R. subapterus* differs from most bugs in having an agreeable odour, somewhat like that of a prune Pear. It has a black body, with yellow hairs and imperfect wings, haunting dry spots where Heath or Furze grow. Nearly all gardeners must have noticed the bugs of the *Pentatoma* genus. Some of them are very beautiful and of varied colours. Though these chiefly live on the juices of plants and fruits, several species are also predatory. They are easily distinguished by the scutellum or triangular shield over the abdomen, much larger in some species than in others. One naturalist, De Geer, noticed females watching over their young brood, in the way hens guard chickens. The odour such bugs leave on fruit is not by any means agreeable.

Few of these insects have got popular names, but one of the familiar and abundant examples, the *P. grisea*, has been called the Cabbage-bug. Often does it swarm upon Cabbages and other Crucifers; also they are fond of such flowers as the Mullein. The greyish general colour is chequered by markings of red, yellow, and black. Another pretty species of mixed colours is *P. ornata*; among many of them red predominates. These children in some countries call soldiers; the duller ones are sailors; they are frequent about gardens, crawling upon low plants. A French naturalist thinks these bugs emit a vapour which produces their disagreeable smell, and which, should it reach the human eye, produces inflammation; it might also irritate a tender skin, but I have never heard of an instance where persons have thus suffered. In the Vine districts of the Continent occurs a blue *Pentatoma*, which is serviceable owing to its feeding on small beetles.

Occasionally we come upon a bug that resembles the beetle tribe: for instance, the broad, brownish *Podops inunctus*, which has two curious epaulets attached to the shoulders, and a large shield that nearly covers the wings. The yellow *Rhopalus capitatus* has hairy antennæ, and wings with such thick nerves that the insect seems fitted for a quick flight. But amongst the bugs some, like *Astemma apterus*, have wings imperfectly developed, so they run over plants. This species is often to be noticed along roads and paths; the abdomen shows two conspicuous circular spots. Upon *Mignonette* we find the smaller *Cymus Resede*, which has a red head and shield, the rest of the body being yellow. It is presumed to feed upon the juices of this or other plants.

Rather a contrast to the preceding species is the bug *Phytocoris tilia*, with long legs and antennæ, also a broad head. It is greenish-grey, having black spots of various sizes, and runs or flies in lively style. Raspberries are a special attraction to it, and we might excuse its attacks on the fruit were it not for the odour (and flavour) it leaves behind. Amongst the bugs popularly called, bishops or bishops' mitres, on account of their shape, are numerous, and haunters of fruit, particularly Cherries, which they scent by a liquid flowing from pores at the hind feet. *Asopus luridus* is a pretty species, yellowish and black, with a purple gloss on some parts of the body; it is mostly seen on trees. Somewhat dull in tint is the bug *Verlusia rhombea*, taking the specific name from its singularly shaped abdomen. It has a long and strong beak, flying rather high on sunny autumn days. Like several of its brethren, it can produce a loud humming sound.

Bugs of the Homopterous order are, many of them, possessed of the power of leaping, and the females have an ovipositor which can be used for boring or cutting. Here belong the aphids and the coccus. Upon their extensive history we cannot dwell, but only remark in passing they have, as a tribe of insects, the habit of concealing or masking themselves whenever possible. Some hide in a woolly or turfy substance, like the American blight; others cover themselves with powder, or exude a syrupy secretion. Curled shoots or leaves and excrescences serve as lurking-places for many aphides. Already, in gardens and the open country, the offensive bug, called cuckoo-spit or frog-spit, besmearing foliage and flowers; it is timid by its

association with the bird once supposed to be the producer, though others attributed the substance to a frog's agency, so 'tis said, thinking such a skipping insect must be of kin to the lively batrachian. Here, too, are placed the Psyllæ, resembling the aphids in some things, but have a large thorax and short rostrum or sucker. They have good leaping force, and are often abundant on fruit trees and certain evergreens.—ENTOMOLOGIST.

The Resting of Plants under Cultivation.

(Concluded from page 388.)

Aquatics.

These have a remarkable resemblance in general habit and structure, and it is not easy to determine which of the peculiarities are really adaptations to the mode of life. A great many of them are supposed to be descended from land forms, which probably existed as marsh plants, and were gradually driven into aquatic conditions during their struggle for existence.

In temperate regions, aquatics rest with a lowering of temperature, some of them forming hibernacular buds or resting buds at the ends of the branches in autumn, which drop off and sink to the bottom of the water, coming up and expanding in spring. Others do not form these special buds, but the stems break up and sink to the bottom, whilst others possess rhizomes or tubers which are embedded in the mud, and answer the same purpose. Under these conditions, water plants are less exposed to violent changes of temperature than are the land plants.

In tropical countries aquatics vegetate continuously all the year round, but in some parts where a decided dry period is experienced, the rivers get very low, and the aquatics manage to exist by the protection afforded the fleshy stems, tubers, or rhizomes by being embedded in the mud. A close resemblance to this treatment is sometimes practised in gardens, but I think the majority do not gain any benefit by being allowed to get dry, although, perhaps, it is occasionally their misfortune in Nature, even in temperate regions during summer. These tender ones seem to benefit by lowering the temperature of the water during winter, especially the *Nymphæas*, sufficient to withhold the production of new leaves. They can also be more easily manipulated when potting is required in spring, and soon respond to the higher temperature which is applied after this operation.

I will here add a few remarks on bog plants or marsh plants, which grow on badly-drained soil, which very seldom becomes dry, to which conditions the plants are adapted in their structure. Many of them possess rhizomes, whilst others produce resting buds in autumn, which in Nature are more or less buried beneath a growth of moss and decaying vegetation. Many of our insectivorous plants are characteristic of these conditions of plant life, both British and foreign. Our British *Droseras* and *Pinguiculas* are reduced to resting buds during winter, as are also the Cape *Droseras* and the N. American *Sarracenias*, and the *Dionæa*; whilst the Australian *Drosera dichotoma* is carried through the resting season by means of its fleshy rhizomes and roots.

Under cultivation those which are usually grown under glass begin to lose their fresh appearance in the autumn, and they should then be removed to a more temperate atmosphere, where their foliage will gradually be reduced to the resting buds; whilst others retain the old foliage throughout the winter, but in all cases they should never be allowed to become dry during their period of rest, although the supply of water can be considerably reduced. Until the last year or two I found some difficulty in keeping *Dionæa muscipula*, the Venus' Fly-trap, through the resting season, owing to the wrong idea that it should be kept in a warm house to retain its foliage; but I found that it forms resting buds which, if stored in a cooler temperature, will not only survive the winter, but also increase in numbers by means of the stronger plants producing two or three resting buds which give rise to individual plants the following season. So far as my experience goes, all these plants rest well by a lowering of the temperature, with no lack of water in the soil at any time.

I think I have now mentioned most of the different ways in which plants obtain their rest, and, in conclusion, would like to draw attention to what has been done of late years to obtain flowers, and even fruits, at a time of year which would be almost impossible under ordinary treatment. This is the retarding process which is practised on such a large scale, by means of which the plants obtain a decided rest, and respond more readily to heat than those which have not been so treated, and can be had in good condition at any time suitable to the cultivator's convenience. According to my experience, the resting season of plants is an important item in their life-history in Nature; is interesting to the enthusiastic plant lover as a study, and cannot be looked upon with too much importance by those who would succeed with them under cultivation.—E. J. ALLARD, Cambridge Botanic Gardens.



Thinning Grapes.

Although the early and midseason crops have already been thinned, the late ones have yet to be done, and probably during the next month more Grapes will be thinned in this country than during any other month of the year. It is of the greatest importance that the work be done as soon as the berries begin to swell, for it is only by thus concentrating the energies of the Vine on the berries retained that they can be grown to the largest possible size. In market establishments work is kept under control by the engagement of extra hands during the thinning period; but in private gardens, where, as a rule, no extra help can be obtained, the bulk of the Grape thinning is done during early morning or in the evening, and it is undoubtedly more pleasantly performed at such times than during the heat of bright sunny days. To the credit of gardeners generally let it be set down that many extra hours of labour are thus given for the benefit of their employers, and no other reward is sought than the satisfaction of knowing that the work was done at the right time to ensure the best results in the future.

Before commencing to thin the berries each Vine should have the superfluous bunches cut off, so that those retained may be distributed as evenly as possible over the whole surface. In selecting the bunches it should be borne in mind that it is not always the largest that are the best. Those of good shape, short in the shoulder, with even berries, are preferable to larger examples which have size alone to recommend them, but if they have the good qualities already defined, the larger they are the better.

Medium sized, compact bunches seldom require the shoulders to be tied up, but others of larger proportions are much improved by the practice. Long shoulders will require two or three ties to keep them in position, and prevent the stems from being cut by the weight of the berries as they increase in size. This part of the work being done, thinning the berries should commence while dry, and the bunches may be steadied with a smooth, thin stick held in one hand, while the other deftly guides the scissors in cutting out the berries. Commence at the bottom of the bunch, where two-thirds of the berries generally require cutting out.

Those retained should be as even in size as possible. It will generally be found that the central berry of each small cluster is best, and the only one necessary to leave in the lower part of the bunch. As the thinner approaches the top they should be left closer together, as the berries of those varieties having long footstalks force each other upward and outward as they increase in size, and thus fill up the shoulders. A frequent mistake made in thinning bunches with long footstalks, is to cut out too many berries near the top. When this is done the bunches often look very well while hanging on the Vines; but when cut and placed on the exhibition board, or the dessert dish, instead of retaining their form, the shoulders spread out in consequence by their want of solidity. The aim of the thinner should be to allow every berry just room to fully develop, and yet enable the bunch to retain its shape when cut. To accomplish this a knowledge of each variety is necessary, and not only do they vary to a great extent in size of berry, but the footstalks also differ in length and stiffness, and therefore require differential treatment.

Black Hamburgh invariably sets well, and ought to be thinned freely at the base of the bunch, but, as a rule, scarcely any need removing from the shoulders, except in the case of very compact bunches. The style of bunches produced by this popular variety, when grown under different conditions of culture, vary so much that I have known instances in which it was not necessary to remove a single berry except the small seedless ones.

Muscat Hamburgh, Muscat of Alexandria, and Mrs. Pince frequently produce many stoneless berries, and for that reason should not be thinned quite so early as other varieties. The small berries should then be first cut out, and the others thinned to form compact bunches. If gaps occur in any part, the berries around should be left a little closer, and the chances are they will quite fill up the blanks by the time the Grapes are ripe.

Gros Colman and Gros Maroc both produce very large berries, yet require different treatment in thinning. The first named has short, sturdy footstalks, and the berries are produced freely on the shoulders. Bunches growing on strong Vines not heavily cropped, ought to have the berries thinned to 1½ in apart; in fact, this grand Grape requires more thinning than any other. Gros Maroc requires thinning nearly as much

at the point of the bunches, but the top should be sparingly thinned, as it is a frequent occurrence to see this variety with loose shoulders, as the footstalks are often long at that part. Buckland Sweetwater does not often require much thinning, it generally being only the stoneless berries that need removing. Gros Guillaume resembles it in this respect. Madresfield Court, with its grand tapering berries, should be freely thinned, special pains being taken to remove those from the centre of the bunch, which are always a source of danger if cracking takes place. Alicante and Lady Downe's have short, sturdy stems, and need regular thinning to about 1 in apart.—ONWARDS.

Some Sources of the Strawberry Supply.

Reports from the French export produce centres, especially Brittany, prove that during the coming season we shall have unusually large quantities of Strawberries sent into British markets. In France this fruit is grown on a most extensive scale. In the environs of Paris are to be seen some wonderfully prolific Strawberry gardens. The method of culture, as far as the general outdoor crops are concerned, is rather different to that adopted by leading English growers. The latter make use of ranges of fields, and do not pay as much attention to the wants of individual plants as the French cultivators do. The output of the British Strawberry fields shows a poor average in comparison to what it might be made. Though the fruits are the finest of their class grown anywhere, yet the average yield is 75 per cent. less than it might be. If our growers paid anything like the attention to their crops that the Paris Strawberry raisers do to theirs, the average output of the fields of Britain would soon be doubled. The leading Strawberry districts of France are located in Verrieres, Sceaux, Chatenay, Bourg-la-Reine, Clamart, and Marly by Paris. Further afield at Orleans and Angers the fruit is raised on hundreds of farms. At Hyeres, Toulon, Nice, and Bordeaux, the crop is a most important one. Bordeaux fruit has a good name for earliness, and for some years it has been sent into Covent Garden in shallow, flat, cross-handled baskets. In Brittany the climate is particularly favourable to the growth of the Strawberry. Brittany fruit is exported to England in quantity. From all the centres named, the large cities of France, and especially Paris, are well supplied with Strawberries. In few cities in the world do choice giant Strawberries command higher prices than they do in Paris. They are sold for weeks at 1s. 6d. and 2s. 6d. a pound in the Halles Centrales first hand. This is due to the influx of visitors, and the desire of hotelkeepers to place the finest samples of berries obtainable upon the tables for dessert.

Plougastel is famous for the production of huge supplies of early Strawberries, and is known all over France as the premier Strawberry growing district. It is to that country what Orpington and Southampton are to England in the Strawberry season. This year we are to have special shipments of fruit sent us by the Plougastel growers. This month the first fruits will be sent into Plymouth for distribution throughout the country. It is expected that 100,000 packages of Strawberries alone will be exported within the next six weeks. The season is a little later than usual this year, but the plants give every prospect at present of a huge yield. Plougastel exporters inform us that they never had their plants in such fruitful condition before. Special attention has been devoted to the crop with the object of putting a better sample of Strawberry upon the English markets this season. The shippers are in a position, under favourable circumstances, to consign from 20,000 to 30,000 packages of Strawberries to Plymouth week after week. Not every one in the trade is acquainted with these facts. In the past seasons difficulty has been experienced in getting the berries upon the markets in perfect condition. Too often they have a gone-off appearance, which militates against their sale, otherwise 50,000 packages could be sent weekly. In some seasons on an average as many as 40,000 packages a week in May and June have been sent into Plymouth. In 1900 for instance, up to the end of the first fortnight in June, over 70,000 packages were sent out from Plougastel. Last year the total for the same period was 164,864 packages, showing an average of over 40,000 a week for one month. The use of the small package has had much to do with the success achieved by French Strawberry shippers.

We do not import fresh Strawberries largely. The arrivals for 1903 were 32,000cwts., and there has been a considerable decline in the imports of this fruit during the last three years. In 1902 the receipts exceeded 40,000cwts. On the other hand, we pay considerably more for foreign Strawberries than the official tables disclose. Quantities of the fruit are shipped in the form of pulp. Then French and German Strawberries preserved in syrup are sent us in bottles. These fruits are chiefly handled by grocery firms. If we put the latest annual imports of fresh and preserved Strawberries at 50,000cwts we shall be well within the mark. The fresh fruit does not much interfere with the sale of English Strawberries. The continental arrivals come to hand early in the season, and are by no means of high quality. They suit a cheap class of buyer, and pastrycooks take to them pretty readily in the busy districts of London.

Mixed with preserved Strawberries with the aid of a little flour and water a presentable tart can be turned out. Possibly some colouring matter is utilised, for the French Strawberry is usually very pale.

British Strawberry growers should arrange to market a plentiful supply of this fruit early in June. The demand in the home markets should be completely satisfied with English fruits from the first week in June. It may be objected that this involves special treatment and attention. Of course it does; and also necessitates the use of the best and earliest varieties. But when the Continental producer turns his attention to the English markets he does not allow such considerations to impede him in his work. We can raise all the Strawberries we require from the first week in June if we care to take the matter in

they carried on their business as English growers do. Efficient distribution and skilled culture are the basis of all profit in these days of increasing competition. These facts are recognised by the French fruit producers, thus they are able to send huge consignments to our ports.—("Newcastle Chronicle.")

Spanish Irises.

Though these and the fortnight-later-flowering English Irises are not abloom in the beds and borders of our English gardens yet—not till the middle of next month—yet their lovely and graceful flowers are numerous on the market. And they are



Bunch of mixed Spanish Irises.

hand. When we suggested an all the year round supply of home-grown forced Grapes, the idea was criticised, yet Grapes which are home-grown can now be obtained from January to December. Why should not British Strawberry growers also cater for an extended season, and meet the wants of trade buyers? Strawberry growing as an industry can be made most lucrative. It is possible with 10,000 plants to the acre to get 10,000lb of fruit of good saleable quality. True, this cannot be done with the use of ordinary plants—plants which have not been propagated properly. Yet a 10,000lb crop by no means surpasses the limit of possible productiveness. Returns ranging in value from £50 to £100 an acre are easily obtainable under good culture. It is a pity to see such a fruitful plant as the Strawberry treated in the way it so often is. The Plougastel fruit growers could not get the large yields they do from their Strawberry fields if

admirable for floral decorative purposes, the blues and the yellows. Both the English and Spanish Irises thrive in well-drained loams, and grow particularly well in sandy loams, thoroughly porous, yet rich, warm, and sunny. They must have a supply of water during the period in which growth is being made, else they either only partially open, or they fade and pass away quickly. We have grown them to grand effect in small beds side by side on a long cross-border near to a rosery, and here, in a suitable soil, and sheltered by cosy hedges, they flowered magnificently. These bulbous, June-flowering Irises ought to be planted in October or November. Many fine varieties are offered, and we would name Thunderbolt, Avalanche, Blue Beauty, Lemon Queen, Othello, Wouverman, and Mon Bijou, for which descriptions are given in nursery catalogues.

NOTES & NOTICES

Royal Botanic Society of London.

Lord Redesdale has accepted the presidency of the horticultural section of the exhibition to be held under the auspices of the Royal Botanic Society at their gardens, Regent's Park, from June 6 to 11.

Hull Horticultural.

At the last meeting of the winter session the prize essays were read. Unfortunately, there were only two. The first was on *Poinsettia pulcherrima*, by Mr. Wm Rowles, and the other on "Some Insect Pests and Their Remedies," by Mr. Waterfull. The judging of the essays was undertaken by Mr. Geo. Gordon, V.M.H., editor of the "Gardener's Magazine."—W. R.

Appointment to Forestry Lecturer.

Mr. Fraser Story, at present lecturer to the Edinburgh and East of Scotland College of Agriculture, and examiner in forestry in Edinburgh University, has been appointed to the lectureship of forestry at the University College of North Wales, Bangor. This new departure in forestry education has been brought about at the instance of Lord Onslow, Minister of Agriculture, acting on the recommendation of the Departmental Forestry Commission. Mr. Story is the son of Mr. Story, estate agent, The Glen, Innerleithen.

Notes from Newton Mearns, N.B.

With the advent of May we are having quite a decided change in the weather. Yesterday the sun shone all day, and we were beginning to think that summer had come. With mild and rainy days alternating, vegetation is pushing ahead. The fruit trees are in full bud, and by a week or ten days we shall have the pleasure of seeing a sight of blossom. With odd dry days now and again, the farmers are completing their sowing and planting, and by another week all Potatoes and vegetables will be in the ground. The corn is showing beautifully already, and a marked difference on the pasture land is to be seen these last few days. The hedges and trees are also looking fresh, while the spring flowers are all in bloom.

Only one bird of passage has arrived, namely, the corncrake. No signs of the cuckoo are here yet. We are anxiously waiting to hear its delicate notes. The bees have been very busy of late, and, with good weather to come, a magnificent supply of pollen and honey is in store for them.—N. R.

Temple Flower Show, May 31, June 1 and 2.

For the seventeenth year in succession the Royal Horticultural Society will hold their great annual flower show in the Inner Temple Gardens (by the kind permission of the Treasurer and Benchers) on May 31, June 1 and 2. Every year the desire of growers to exhibit increases, and the officials of the society have a very anxious task in endeavouring to do justice to those who regularly support the fortnightly shows, and yet at the same time to encourage others to come forward. The space is absolutely limited by order of the Temple authorities; no more or larger tents can be erected, hence every new exhibit which is accepted means curtailment of the space allotted to previous supporters. The society will issue an official catalogue containing centennial notes on the Royal Horticultural Society, particulars of the meetings and exhibitions, both at the Drill Hall, Buckingham Gate, and at Holland House, Kensington, and in the Horticultural Hall, Vincent Square, also a schedule of the exhibits with the names and addresses of all the Temple exhibitors entered up to May 20. There will also be the programme of the music to be performed each day by Lieut. Chas. Godfrey's band. The judges will meet at the secretary's tent at 10.30 a.m. on May 31, at which hour punctually the tent will be cleared of all exhibitors and their assistants. The fruit, floral, and orchid committees will assemble at the secretary's tent at 11 a.m. sharp, and the show will be opened at 12.30. All plants for certificate must be entered on or before Thursday, May 26. Address: Secretary, Royal Horticultural Society, 117, Victoria Street, London, S.W.

The Agricultural Organisation Society.

The annual meeting of the above society was held at the Westminster Palace Hotel on Wednesday, May 4, at 2.30 p.m.

Royal Meteorological Society.

The next ordinary meeting will be held in the rooms of the society, 70, Victoria Street, Westminster, S.W., on Wednesday, the 18th inst., at 4.30 p.m., when the discussion will be taken on Mr. W. L. Dallas's paper, "The Variation of the Population of India Compared with the Variation of Rainfall, 1891-1901"; and the following papers will be read:—"Some of the Causes of Rain," by the Hon. F. A. Rollo Russell, F.R.Met. Soc., "Rainfall at the Royal Observatory, Greenwich, 1815-1903," by William C. Nash.

The Fruit Industry.

The Departmental Committee appointed by Lord Onslow to inquire into and report upon the fruit industry of Great Britain held sittings recently, and the following members were present:—Mr. Boscawen, M.P. (chairman), Colonel Long, M.P., Mr. C. W. Radcliffe-Cooke, Mr. Hodge, Mr. Munro, Mr. Vinson, Dr. Somerville, Mr. P. Spencer Pickering, and Mr. Ernest Garnsey (secretary). The following witnesses gave evidence:—Mr. F. King, of St. Ives, Hunts; Mr. Spencer-Pickering, a member of the committee; Mr. C. D. Wise, of Toddington, Gloucester; Mr. John Idiens, of Evesham, Worcester; Mr. W. Templeton, of Netherburn, Lanarkshire; Mr. George Sinclair, of East Linton, Midlothian; and Mr. James MacDonald, of Welton, Blairgowrie.

British Grapes.

Covent Garden is the market for all the world in the matter of fruit now, but there is one kind of which practically the whole supply is produced in the British Isles, and that, curiously enough, is Grapes. There is not a month in the year in which hothouse Grapes of the choicest descriptions are not obtainable. Thus, from July until the end of January hundreds of tons of dessert Grapes come by road from the nurseries in the neighbourhood of Finchley and Totteridge, London. At the present time Grapes from Worthing are fetching handsome prices in the market; and during the winter and spring huge consignments come from the Channel Islands, which year by year are so extending their operations that Jersey, at any rate, threatens to become one vast glass house.

April Weather at Belvoir Castle.

The prevailing direction of the wind was S.W.; total, nine days. The total rainfall was 1.15in; this fell on fifteen days, and is 0.65in above the average for the month; the greatest daily fall was 0.34in on the 15th. Barometer (corrected and reduced): highest reading, 30.293in on the 18th, at 9 p.m.; lowest reading, 29.326in on the 13th, at 9 a.m. Thermometers: highest in the shade, 63deg, on the 18th; lowest, 33deg, on the 17th; mean of daily maxima, 55.16deg; mean of daily minima, 40.40deg; mean temperature of the month, 47.78deg, which is 1.68deg above the average; lowest on the grass, 27deg on the 17th and 18th; highest in the sun, 113deg on the 17th; mean temperature of the earth at 3ft, 44.10deg. Total sunshine, 168hrs 25min, which is 10hrs 49min above the average; there were no sunless days.—W. H. DIVERS.

Cornish Vegetable Crop.

From West Cornwall stations Broccoli are still being sent to the markets in fairly large quantities, and will continue to be loaded for probably a fortnight longer from the inland farms, although the early plots are cleared out. The Broccoli season has continued for fully six months. Prices were somewhat better last week, ranging from 2s. 9d. to 3s. 6d. per crate for ordinary heads, and 6s. per crate for the best quality. For some years past the very late Broccoli have realised exceptionally good prices, and hopes were entertained that this year would prove no exception; but prices this year at the end of the season have not reached the usual mark so far. Cabbages are now very plentiful, but the demand is small, although they are offered at fair prices. The Potato fields are looking well, and there is promise of a good yield. So far the fields have been untouched by frost, although there are reports that hoar frost was seen in some of the country valleys on Monday morning. Consequent upon the recent rains, the whole countryside is looking well.

Market Gardening: The Strawberry Crop.

While the Strawberry crop in the Tamar valley is likely to be rather later than usual this year, that of Brittany will be earlier than has been the case for some years. Growers hope to send the first consignments to England in a week at latest.

United Horticultural Benefit and Provident Society.

The monthly committee meeting of this society was held at the Caledonian Hotel, Adelphi Terrace, Strand, on Monday evening last, Mr. Chas. H. Curtis in the chair. Eleven new members were elected, making a total so far this year of fifty-six. The death certificate of the late Mr. James Pick, of Barkby, Leicester, was produced, and a cheque for £28 0s. 6d. was granted to his widow, the same being the amount standing to the late member's credit in the ledger. Five members were reported on the sick fund, the amount paid to sick members during the month being £28 10s.

Will of the late Mr. Herbst, Nurseryman.

Mr. Herman Herbst, of Stanmore, Stanmore Road, Kew Road, Richmond, Surrey, who died on March 18, leaving estate valued at £9,077 gross and £2,088 net, bequeathed £100 each to the Royal Gardeners' Orphan Fund, to the Gardeners' Royal Benevolent Institution, and the Royal Hospital at Richmond; £1,000 to Mr. George Nicholson, late curator of Kew Gardens; £500 to his housekeeper, Mary Ellen Phillips, with certain furniture and land (producing £46 a year); £500 to his former housekeeper, Mrs. Ann Church (formerly Smith), of Ipswich; and £20 each to servants who have been in his employ for twelve months.

Belvoir Castle, Grantham.

The gardens of this magnificent seat of the Duke of Rutland are in the height of their spring beauty, or perhaps the best effect was afforded at the end of last week. We had then the privilege of viewing the various flower gardens that lie at easy intervals from one another to the south of the castle walls; and to say that these were tasteful, rich, and good in all respects is only a faint expression of praise for Mr. Divers, the gardener-in-chief. The castle has one of the finest situations for any such edifice in England, standing 300ft above sea level, and commanding a view of the expansive country on every side around. The slopes of its foundations are clothed with massive trees, which taper off into woods with flowering under-shrubs for many miles in front; and the songs of a thousand birds resound through each passing day.

Croydon Horticultural Society.

Mr. E. E. Hawes, Royal Botanic Gardens, Regent's Park, lectured on "The Value of Botany to Gardeners" at this society's meeting, held in their rooms, Sunflower Temperance Hotel, George Street, on May 3rd, and his interesting discourse on the subject was well worthy of the members' attendance, for in an adequately lucid manner he portrayed how this science should be the groundwork of the gardener's vocation, especially at the present day, when the man who knows most is the man likely to succeed. There was a time, he said, when the old rule of thumb methods might serve the gardener, but now, in severe competition, a man is expected to understand scientifically, as well as practically, the plants under his charge, and surely the physiological knowledge of plant life should be very necessary to all, for with this study he can more readily adapt the proper treatment to his subject, and so succeed with its culture at first treatment without so often, as used to be the case, meeting with failures before success repaid his energies. After his opening remarks he illustrated by a number of specimens the natural functions of the plant, from its embryo form found in the seed till the fully developed species existed, tracing gradually the formation of roots and their relative benefits of taking up nutriment from the earth to succour the growth of the stem and leaves. He described the various kinds of roots which are ordained by Nature to suit the different classes of plants, such as the tap roots, fibrous roots, and adventitious roots, like those found on Ivies, Ampelopsis, and other plants which adhere to the structure they grow upon. The cells, some minute and others more pronounced, found in plant life, and their methods of storing up the food required by the plant, were well explained. To impart clearer ideas, he passed several specimens under the microscope, and these demonstrated more fully his remarks.

Swallows, Cuckoos, and Nightingales.

The Belvoir district is very rich in bird life, and on Thursday of last week we saw numerous swallows disporting themselves on strong, swift wings around the castle walls; while at eventide the nightingale's melody followed the last of the cuckoo's notes. Strange it is that the nocturnal minstrel should begin the moment that the woods have become stilled and darkened.

Cheap Strawberries.

Strawberries are comparatively cheap at Covent Garden. At this early stage of the season they are generally sold at 5s. or 6s. a pound, but they were to be obtained recently at 2s. 6d. and 3s., while "seconds" were selling at 1s. 6d. a pound. The comparatively low prices were attributed by one of the leading dealers (says the "St. James' Gazette") to the fact that the King and Queen were out of town. "You have no idea," he said, "what a great difference it makes when their Majesties are not in London at the commencement of the Strawberry season. The class of people who can afford to pay the prices seem to stop all their parties during the absence of the King and Queen, and not a few of them follow the Royal example and go out of town also."

Sale of Japanese Dwarf Plants.

Messrs. Robinson and Fisher sold recently, at Willis's Rooms, King Street, St. James's Square, a large collection of Japanese dwarf plants, including many interesting and rare specimens, collected in Japan by Mr. Wallace Johnstone, of Solham House, Newmarket. The sale of 189 lots produced a total of about £400, the principal prices being as follows:—Maple, grafted with two varieties, red and green, £11 10s.; Acer palmatum, said to be 300 years old, in a very shallow pan with a depth of about 2½ in, £16; Wistaria multijuga, with curiously twisted trunks, with over 120 blooms upon it, 350 years old, £11; Thuja obtusa, green variety, 350 years old, £16 10s.; and another plant of the same, golden variety, £10 10s.

Ware Horticultural Society.

The monthly meeting of this society was held in the Vicar's Room on April 26, when there was a large attendance of members, presided over by Mr. H. Bates, of Hertford. Mr. F. Heath, of Presdales Gardens, read a very interesting and instructive paper on "The Culture of Irises." He dealt with their introduction and their native requirements, also the best position for each section for growing well in this country. Mr. Heath stated that there were sixteen species of Iris at Presdales. The judges for the monthly competition were Messrs. J. Gilbert and W. Porter. There was a fine display of plants, flowers, and vegetables staged by Messrs. Fulford, Noyce, Spencer, Gull, Smith, Clibbon, Knight, Page, Brazier, and the secretary (Mr. G. Gumbrell). The cottagers' exhibits were by far the best seen in the room this season. The usual vote of thanks was accorded the judges, exhibitors, and chairman. At the next meeting, on May 24, Mr. Noyce will read a paper on "Carnation Culture."

Bristol Gardeners.

The annual meeting of the Bristol Gardeners' Mutual Improvement was held at St. John's Parish Rooms. The report presented showed that the society was still doing good work. The society shows a membership of over 100, which number it is hoped will be considerably increased during the coming year. The subscription is only 2s. 6d. per annum, and considering the amount of information obtained from the eighteen lectures given it is a very small amount, and quite within the reach of every class of horticulturist. Young gardeners especially would do well by joining a society such as this, where they would be helped to master the profession they have chosen. Colonel Cary Batten has again been unanimously elected president; Mr. Garnish as chairman; and Mr. Lee as vice-chairman. Messrs. Curtis and Garnish act as librarians. Mr. W. Ellis Groves is the hon. secretary and treasurer, with Mr. H. Kitley as his assistant, and fifteen members as committee, Mr. H. Groves acting as registrar. Prizes offered at the meeting were for three table plants, and 1st went to Mr. J. C. Godwin (gardener, Mr. McCulloch), Mr. W. Howell Davis (gardener, Mr. Curtis), and Mr. S. White (gardener, Mr. Bruee). A certificate of merit went to Mr. J. C. Godwin for *Odonoglossum triumphans*, a special certificate being recommended to Messrs. Garaway and Co. for a magnificent lot of Zonal Geraniums.



Primula verticilla.

It is impossible to say too much in praise of this beautiful species, so charming just now by reason of the contrast between its compact tufts of silvery foliage and whorls of bright yellow blossoms, so deliciously fragrant. The species seeds freely, and it is possible that if a few of the largest flowers were fertilised with pollen from others, finer forms might be obtained. It is a plant of easy growth, but not quite hardy.

Decorative Nephrolepis.

The capabilities of *Nephrolepis* are once more being demonstrated in the form of *N. exaltata* Scotti, and the fortunate possessor of this variation of the Boston fern seems destined to have a busy season and to make comfortable additions to his bank account. *N. Scotti* is especially attractive in plants of moderate size; its very compact growth showing to advantage in a 6in or 8in pot, and these being sizes that are always in demand in the retail trade, there will doubtless be little trouble in disposing of them at fair prices. The *Nephrolepis* are so easily handled, propagate so rapidly, and grow to marketable size in so short a time, that it is no wonder they are popular in the trade, and when in addition to these qualifications is counted their great beauty, and the fact that they will give reasonable satisfaction to the purchaser, we can readily understand where so many houses full of this stock may go each season.

The Papaw in Queensland.

The Papaw fruit is widely distributed over tropical Queensland, and is most agreeable and nutritious. Quite universal is the knowledge of the unique property that has given to the Papaw its world-wide fame—viz., the power of its milky juice to soften and dissolve tough meat. The emanations from this tree will dissolve and digest albumen, and it is the custom of the natives to hang meat and chickens in the branches of a tree to render them tender and edible. The uses of the Papaw are numerous and varied. The bark is used in the manufacture of ropes; the fruit is edible, and is sweet, refreshing, and agreeable. The ripe fruit is eaten as we eat Melons. Salt enhances the flavour, and some users add sugar. The Melons must be perfectly ripe when eaten raw, as the green fruit contains a strongly marked acrid principle. The colour of the ripe fruit is more or less that of the yellow Musk Melon. The sweetness of its resinous, pulpy juice clings to the tongue, and remains prevalent for some hours. Excellent preserves are made of the ripe fruit, which, for this purpose, is boiled down in sugar, and candied (like Citron). At the sugar houses slices of the Papaw are often seen seething in hot syrup. The slices of Melon, combined with some acid fruit, is made into native tarts. The fruit is also stewed and served on the table. The green fruit is made into plain and spiced pickles, which are highly esteemed. The fruit just before ripening is peeled and sliced, macerated in cold water, with frequent changes of water for some hours; the then macerated fruit is dropped into boiling water, boiled sharply, and then served as a vegetable. The green leaves, or slices of the green fruit of the Papaw, are rubbed over soiled and spotted clothes, and, by its power of dissolving stains, Papaw has acquired the name of "Melon bleach." The leaves or a portion of the fruit are steeped in water, and the treated water is used in washing coloured clothing, especially black. The colours are cleaned up and held fast. The seeds are eaten as a delicacy. They have quite an agreeable taste, something of the order of Watercress, and a piquancy slightly suggestive of the Mustard family. Macerated in vinegar, they are served as a condiment. In hot climates meat must be eaten immediately after slaughter. (It often reaches the pot in an hour after killing.) The Papaw helps to overcome this. Rubbed over tough meat, it will render it soft, and change a piece of apparent leather to a tender, juicy steak. It is put into the pot with meat, enters into cereals, soups, stews, and other dishes, and they are made at least more edible and digestible.

Ranunculus amplexicaulis.

The finest of the European sub-alpine dwarfed Crowfoots, and easily distinguished from others by its slightly glaucous leaves that sheath the stem. It is a plant (says the "Agricultural Economist") that varies a good deal, reaching from 9in to 15in in height, and expanding a profusion of pure white petalied but yellow centred flowers in May. Because it comes from the Alps of Provence and Pyrenees, it is sometimes starved by being grown in poor soil. Give it rich loam and slight shade, and it becomes a fine spring-flowering hardy plant.

Tulipa Kaufmanniana.

The newer forms of *Tulipa Kaufmanniana*, with yellow and scarlet flowers, will possibly attract some attention to the older varieties, the best of which can hardly be surpassed by any early-flowering Tulip. It is a most variable Tulip, as was most forcibly brought home to me by seeing a bed of several hundreds at the Comely Bank Nurseries of Messrs. Cunningham, Fraser, and Co., Edinburgh, this spring. It is a Tulip I have known since almost the time of its introduction, but I was hardly prepared to find so much variation among them, both in size, stature, and colouring. As those who have grown it know, good flowers, when open to the sun, resemble nothing so much as a Water Lily; and some are like a yellow *Nymphaea*, others are almost pure white, while some of the best have a beautiful carmine zone at the base of the interior, as well as being flushed with the same colour on the outside. It is a lovely Tulip, of perfect hardiness, but I have seen its foliage injured by unusually late frosts, and, like other Tulips, it is occasionally attacked by one of the fungoid diseases which are so destructive at times.—S. A.

Varieties of Dracenas.

Some new *Dracenas* appear from time to time, though but few of them attain to commercial prominence, so many of the members of this family being too tender to endure the trials of house decoration. Among the later introductions for which great promises have been made is *Dracena Kewensis*, the hardiness of which is said to approach that of an *Aspidistra*, a recommendation that is certainly a strong one. The foliage of this species is light green when young, changing to olive green when mature, the leafstalks being red, and the plant will flourish under such conditions as would be given to *D. congesta* or *D. basiliensis*; namely, a night temperature of 60deg and plenty of light. This plant may prove of value for window boxes and similar decorative work. A *Dracena* that dates from 1877 is still one of the most attractive, though by no means common after having been in cultivation for over a quarter century. *Dracena Goldiana* is the plant referred to, and it is evidently attracting more attention the last year or two, and possibly may appear in wholesale quantities in due time. The broad leaves of this *Dracena* are transversely marked with blotches of silvery white on a dark green ground, and it is one of the most distinct of foliage plants, its greatest drawback having been the comparative slowness of propagation by means of cuttings.

Early-flowering Gladioli.

The beautiful early flowering *Gladioli* should be largely planted for supplying cut bloom from May to July, and for the fine effect they produce in the flower garden. *G. Colvillei* The Bride is extensively grown in pots and boxes for cutting during April, May, and June; and all may be grown in pots for indoor decoration. For culture outdoors Messrs. Barr and Sons recommend the selection of a situation protected from cutting winds and shaded from the midday sun. Deeply dig the ground, working in plenty of rotten manure in the underspit, and see that the soil is made light and friable; plant the bulbs from October to January, at a depth of 4in to 5in, and in the case of the later plantings soak the bulbs in water a few hours before putting them in the ground. After planting, cover with long straw litter or other light material, which remove in March. *Gladiolus byzantinus* and the *Colvillei* varieties are best planted in October or early in November. If the summer is dry and the weather hot, give an occasional good soaking of water or weak liquid manure. Culture for conservatory decoration: Plant three to five bulbs, according to size, in a 5in or 6in pot, and plunge in ashes up to the rim of the pot in a cold frame or pit, withholding water till the bulbs have started into growth; or the pots may be buried in ashes out of doors under a south wall, and remain undisturbed till ready to remove indoors.



Early-flowering Gladioli



Birds' Eggs' Preservation.

In last week's *Journal of Horticulture*, page 397, in answer to a correspondent *re* birds' eggs preservation, you recommend blowing eggs with two holes. Nowadays eggs are always blown with one hole only, and that generally on one side. This is accomplished by the use of a blow pipe, which can be purchased at any taxidermist's. From a collector's point of view, eggs blown with two holes are worth 50 per cent. less than those with one only.—L. BIGG-WITHER.

The Inspiring Letters, "F.R.H.S."

Many people at a distance removed from London seem to regard the letters "F.R.H.S. (Fellow of the Royal Horticultural Society) with the same respect as they do those of "M.A.," "M.D.," and "D.Sc.," and from the "Sussex Daily News" I observe that the R.H.S. is looked upon as "a learned body." Another paragraph in the "Western Mail" furnishes a paragraph to record that J—— "was unanimously elected a Fellow of the society." It should be known that no knowledge of horticulture or botany, or any other science, is necessary in order to join the Royal Horticultural Society, but what is necessary is that the respective subscriptions be paid.—CYMRI.

Cyaniding on an Established Basis.

Supplementary to the notes you were good enough to publish from my pen on page 384 of last week's *Journal*, the following proportions at which to use the hydrocyanic acid gas have been drawn up by Mr. W. F. Emptage, and endorsed by myself:—

PROPORTIONS AND USES FOR 1,000FT UNIT.—(1) For nurserymen in clearing dormant stock of out-door shrubs and trees of scale, American blight, &c., the plants should be stood thickly together in a glass house or in a cyaniding shed, which should become part of the outfit of every nursery place. 2½oz of the sodium cyanide, 30 per cent. strength, 5 fluid oz. sulphuric acid, spec. grav. 1.8, 15 fluid oz water, will be ample for the purpose; 50 to 60 minutes may be given as the period of exposure. The trees will be best dry and the temperature of the shed at about 50deg. Nurserymen buying in stock from fresh places, where scale, &c., are found on them or are to be feared, should always subject the plants, &c., to this process. The formulæ given will also be found useful for all kinds of forest trees when dormant.

(2) For the destruction of all scale insects, mealy bug, thrip, &c., on Vines when the fruit is out, and on Peaches and Neectarines when the fruit is cleared, and on Orange trees, Camellias, Gardenias, Stephanotis, Passifloras, Dipladenias, palms, Plumbago, Euphorbias, orchids, Fuchsias, Azaleas, greenhouse Rhododendrons, Roses, hard-leaved Ferns, Ficus, and many other subjects, when not actually making a new growth. Orchids may be cyanided safely when the roots are not making new growth on the outside of the baskets or in the air. No grower or nurseryman need be troubled with mealy bug again. For these plants, in a temperature of 50deg to 55deg, 2oz sodium cyanide, 4 fluid oz of sulphuric acid, and 12 fluid oz of water, exposure 40 minutes, will be perfectly safe quantities to use. The foliage should be dry, but this is not imperative in the case of dormant plants.

FOR VINERIES IN WINTER.—At or about pruning time, when the Vines are quite dormant, for the destruction of Vine-scale, mealy-bug, red-spider, &c., two cyanidings should be given at intervals of 24 hours of 2½oz sodium cyanide, 5 fluid oz sulphuric acid, 15oz water, exposure 50 minutes, temperature of house, 50deg to 55deg.

FLY AND OTHER INSECTS AMONG GROWING PLANTS.—For all plants such as Pelargoniums, when not in flower, Azaleas and general greenhouse stuff, 11-3rd oz sodium cyanide, 3½ fluid oz sulphuric acid, 10½ fluid oz water may be used with perfect safety, providing the plants are dry, and the temperature of the house not above 55deg; exposure 40 minutes.

FOR FLY, THRIPS, &C., ON MORE DELICATE SUBJECTS.—1½oz sodium cyanide, 3 fluid oz sulphuric acid, 9oz water; exposure 40 minutes. The plants should be quite dry, and the temperature be lowered to 55deg if possible. Where this is not possible 1oz of sodium cyanide will probably be sufficient, 2 fluid oz sulphuric acid, 6oz water, repeating the operation if needed.

TOMATO FLY (Aleyrodes).—This is a pest that only those who have large Tomato houses infected can fully comprehend. There

need be no further trouble in this respect, as the 1½oz formulæ (No. 2) will bring everyone down to death. Repeated every two days until all eggs are hatched, there will be a thorough clearance made. There is no other method of insect destruction, especially for Vines, &c., that is so cheap and efficient as the sodium cyanide process. We shall be pleased to give advice on the use of the gas to all who need it.—ELDERBERT F. HAWES, Royal Botanic Gardens, Regent's Park, N.W.

Planting Out Bulbs after Forcing.

The notes by W., page 386, and "J. N.," page 387, on the treatment of bulbs after they have been forced, or have finished flowering in the beds, as the case may be, are of much value; and one hopes that the hints contained may be acted upon. For myself, I may say that it has been the annual custom to plant out all the forced bulbs in a sandy border which is shaded by small copper and fern-leaved Beech trees, as well as Apple trees, and the flowers from the bulbs therein planted furnish a brilliant display every year. But we harden off and plump up the bulbs as far as circumstances allow, ere placing them where they are to grow. Of course where Tulips are forced, and their flowers and foliage cut right off close above the bulb, the latter is not considered fit to plant; but possibly such bulbs have at times been planted, and if any reader of this letter can tell me what were the results in such cases, I would be pleased.—Mc., Edinburgh.

The Use of Royle's Threader.

Seeing rather a discordant note struck in the issue of the *Journal* for March 31, against the use of Royle's threader, as recommended in the *Journal*, March 26, 1903, by Mr. Thos. Fletcher, Grappenhall, might I say that through the same source we were persuaded to give it a trial with most gratifying results. The trees, Currants especially, were all right in this late district until nearing the end of March, when the birds, chiefly bullfinches, were again commencing their annual damage, the threader was then freely used, and acted as a one-night cure. The trees are now showing an exceptionally promising display of bloom, and the threader has certainly left upon us a good impression.—C. D., Brecknock.

County Armagh Fruit Industry.

Within the last few years an important industry in the cultivation of fruit—chiefly the Strawberry—has sprung up in the district radiating from Cockhill, Tartaraghan, County Armagh. The soil in this district is peculiarly suitable to fruit culture. One great advantage the industry possesses is that the cottager and small farmer can share in the profits. It is to be regretted, however, that some encouragement has not been given them by either the Agricultural Board or County Council. For instance, there is scarcely a fruit farm but lies outside the limit of the free delivery for telegrams. Now, a telegraph or telephone office could be provided at little outlay, and would be a great boon in the fruit season. There is only one delivery of letters in the day; the English and Scotch letters lie over till next day. An extra messenger, during the season, at least, might be allowed. Then, the roads leading to both Portadown and Annaghmore Stations are anything but good. A few perches only have been rolled, and this, for the carriage of Strawberries, means something. If only these matters were brought under the notice of the above Boards, something would be done.—PROGRESS.

Proposed Gardeners' Society.

Owing to so many different opinions having been expressed, it seems a pity the provisional committee has not endeavoured to ascertain the general feeling on the subject. The previous meeting held could not have been attended by many private gardeners or market employes, or surely there would have been a larger proportion elected on the provisional committee. In order to gauge the various opinions, and solely to assist in arriving at a correct solution, will all gardeners, market and nursery hands, who have been employed in horticultural work for the past ten years, send a postcard with their full name and address, and the figures 1, 2, 3, or 4, as best corresponds with their views, viz.:—

1. Are you in favour of a society to include gardeners, nursery and market growers, and horticulturists generally?
2. Are you in favour of a society for private gardeners only?
3. Are you in favour of a society for nursery and market employes only?
4. Are you against any association being formed?

Will all interested kindly respond? and I will endeavour to tabulate, and give the results in time for the meeting on June 1. —WILLIAM E. CLOSE, 28, Langthorne Street, Fulham, S.W.

Tropical Plants.

(Concluded from page 315).

ARRANGEMENT.—In making the tropical house attractive by displaying its inmates to the best advantage, the good plantsman will at the same time study the whims and wants of each and every subject under his hands. It is remarkable how much diversity of atmospheric character may prevail in one house alone. Difference of temperature, light, moisture, and air which possibly obtain are all differences not to be disregarded, and observation will turn these apparently insignificant items to practical account. "Miffy" subjects, which in one position appear to exist on sufferance only, may in another thrive and be happy. This is no fanciful theory, as an intelligent study of the matter will show, and the keener the observation which is brought to bear upon this point, the more its truth and relative value will be impressed. It is not easy to explain this, but desirable to make it as clear as possible. We may have on the one hand a young man who pots, waters, stakes, and ventilates, all in a way which it would be difficult to find fault with, but all is carried out on merely mechanical lines; whilst another, whose passionate love has brought inspiration into his work, seems to live for, work for, feel for, and will often speak up for his plants, the latter in a manner which admits of no denial for the necessities of culture. He does not say: "Oh! That's the boss's look-out," but makes it his look-out. This enthusiasm in a young plantsman is good—good for himself, good for the "boss," and good for the plants.

SYRINGING.—Here we have an important factor in health and cleanliness, but, like watering, it has to be learned. We find our boys take readily enough to the syringe, but their principles of appreciation are pretty much on a par with the schoolboy squirter, although they generally display an inordinate fondness for the rose distributor instead of the nozzle. The use of the latter, however, is insisted upon, as no other form of application is so effective. The manipulation of the nozzle to produce a coarse or fine spray, with some force where foliage, such as palm leaves, permits, and the facility with which the most important part—the under side of the foliage—can be reached, give it the preference over other methods. During the dull days of winter the syringe is practically at rest, unless on dry walls or positions near the pipes; but with the advent of the growing season syringing may, according to weather, commence with a moderate spraying during the warmest part of the day, say at 11 a.m., and increase with the sun's power until an early morning operation and an afternoon one at closing time become the order of the day. We hold no brief for the Four Oaks Horticultural Supply Company, but give preference to their undentable syringe.

SHADING.—This is an auxiliary item in plant culture which is often one of much expense and worry where roller blinds are used, and their use entails a vast amount of watchfulness on the part of the man in charge, as well as being a considerable amount of anxiety to old heads when inexperienced hands are the guardians *pro tem*. Of course, many will say that roller blinds are a necessary evil. The evil is admitted, but the necessity doubted, so far as personal experience goes. Years ago we abolished roller blinds, and took to muffing the glass lightly in the early part of the season, heavier as occasion demands—two operations in the year, white lead thinned out with turps applied with a whitewash brush being the material and method of muffing. Autumnal rains gradually dissipate this till it disappears, with, possibly, a little help from a rubber. "What of the results?" is a pertinent question. Well, not an iota of difference has been noted in the well-being of our beloved stove plants; had such obtained, this plan would neither be utilised nor advocated.

VENTILATION.—Again, watchfulness is the desideratum, and whatever sort or gearing is used, never interpret, or misinterpret, the word "ventilation" as draught. Rarely, indeed, during our summers is front or end ventilation necessary, and top ventilation should never mean a sudden lowering of temperature, hence the importance of anticipating sun heat with a corresponding check on fire heat, and seldom is our fire out, although consumption of fuel is reduced to a minimum at midsummer.

PLANT PESTS.—Thorough cleanliness is not only next to godliness, but probably as near perfection in plant culture as we can attain. The greatest bugbear of all the bugs our tropical plants are heir to is—and it goes without saying—the mealy bug, and we cannot but execrate it as the foulest, most insidious, and despicable enemy to be dealt with. However, it can be dealt with, and done away with, too; and let no young fellow upon whom the responsibility rests talk of impossibilities. There may be such even in gardening, but this is not one of them. Fain would an old head impress this on any young

hand who ventures even to think of it as an impossibility. Think, young bothyite, for whom this and preceding papers have been specially written to push on—think of the great Earl of Chatham's way of treating such, and do likewise. "Impossibilities!" he said. "I trample on your impossibilities!" Pardon the digression, and—to our bug. All know the routine of a thorough washing and cleansing with some insecticide of repute. Here with many is the beginning and end of the matter, periodically repeated. The beginning it may be, the end it must not be while one bug is left to perpetuate his (or her) species, if he (or she) can do it. Give a thorough cleansing, and then begin. Never let a day pass without a few minutes' inspection, and always have ready (keep it handy) a bottle of methylated spirit, with a brush or wire and sponge inserted through the cork for touching 'em up. "Revenge is sweet." Seize your bottle when entering the house on the occasion of spare moments which come to the busiest. Remember, the Sabbath day on which he who would not pull his ox or his ass out of the ditch, nor dab a mealy bug, carries his sentiments to extreme points, for which there is no warranty. Keep this up unceasingly for a month after the great cleaning day, and then clean again—another thorough washing—and for a month after the same unremitting surveillance. If after these big bombardments and subsequent skirmishings, lasting, say, for six months, the tropical plant house is not free of the pest, then at 'em again, and keep at 'em—fight to a finish. For scale on palms or orchids the methylated spirit is excellent (if found too strong, add a little water), and an occasional fumigation (vaporising) through the growing season is of distinct benefit.—A. N. OLDHEAD.

Floral Decorations.

In New York recently there were made some of the most elaborate funeral designs that have been seen there for a long time. By elaborate we do not mean that the designs were intricate, or emblematic in their make-up, but rather that they were large and massive, and filled only with the rarest and costliest of flowers. The work (says the "Florists' Exchange") was that furnished for the late Hon. W. C. Whitney's obsequies, by the Rosery Company, and a brief mention of a few of the pieces will no doubt be of interest. The casket or coffin cover was composed wholly of Violets and Lily of the Valley, and was put together in such a manner that when finished it had a natural wavy appearance, which added much to its beauty. In order to create the wavy effect, the artist, in making the cover, had commenced at one end of the wire cloth and, with Violets in bunches of 100 each, tied a row of them straight across from one side to the other. This was followed by a row of bunches, each of which contained but fifty Violets. Next came a row of the large bunches, then another row of small ones, and so on until the end was reached. Each bunch was tied firmly to the wire, so that there was no chance of any of them coming loose while the cover was being handled.

When the Violets were all placed, narrow streamers of Lily of the Valley were tied at regular distances along each side. These streamers were about 3ft long, but instead of being allowed to hang their full length, the streamers were caught up near the middle, and looped on to the border of the cover, being fastened a few inches from the edge, and at equal distances between the places where the streamers were first tied to the cover. The effect of the Lily of the Valley and the Violets thus intermingling can better be imagined than described.

Of the many designs furnished, they all took one form, viz., the wreath. One composed of American Beauty Roses, the flowers being wired with stems about 12in in length, was a beautiful piece; in diameter it measured almost 9ft. Another, of nearly equal size, consisted of Lily of the Valley only, and it took over 5,000 sprays to finish the design properly. Another very choice wreath was filled with *Cattleya Trianae* bedded on *Adiantum Farleyense*. Then there was one of white Roses and white orchids, and another of Lily of the Valley and white orchids. A very rich combination was obtained by using *Cattleyas* and *Gardenias* on one wreath, while in another an equally pleasing result came from the use of Lily of the Valley and the darkest coloured *Cattleyas*.

White Lilac was the only flower used in one of the largest wreaths, and with plenty of its own foliage along the outlines, made one of the daintiest designs imaginable. Another wreath in which a pleasing combination was brought about was one made of American Beauty Roses and Lily of the Valley. The two choicest wreaths of the collection, however, were one composed of *Gardenias* alone, and the other filled entirely with that beautiful orchid *P. alenopsis amabilis*.

Book Notice.

Old West Surrey.*

We have before us a dainty volume, which will be delightful to many a Londoner or resident in Surrey suburbs, and of interest to all who admire the beautiful scenery of our island, and are fascinated by its old memories. Surrey is one of the Home Counties. The name is expressive, for these are nearest the heart of England, the pulsations of which are felt, indeed, all the world over. Much of the Metropolis is in that part of the county lying along the Thames. Early in Queen Victoria's reign people could see the Surrey hills from Belgravian houses, though the view is now blocked. For centuries it has been a joy to Londoners seeking a change that the hills, heaths, commons, and copses of Surrey were many of them easy of access. Then, pretty nooks and by-ways abounded, which, as Miss Jekyll remarks, might have been one or two hundred miles from the big city. Trains and cycles have brought visitors in swarms, spoiling many of the remnants of Old England. Naturalists, artists, photographers have been busy, and, since the craze for collecting, also the hunters of curios, such as we find depicted in Miss Jekyll's book, which some villagers are tempted to part with, often getting far less than the proper value.

The domestic and social history of England is distinctly enriched by Miss Jekyll's book on "Old West Surrey," and it appeals also to the gardener, the farmer, and the scientist. Though the authoress acknowledges indebtedness to some friends it is herself we have chiefly to thank for reminiscences of a locality she knows so thoroughly and loves so well. Miss Jekyll is skilled in the art of describing, and uses the best words possible to convey her ideas. A heartiness characterises this book, as it has others from her pen, due to the sympathy Miss Jekyll has with the little world around her. Some people were puzzled by former books of this lady, having doubts as to which county was the scene of her story. Hampshire, Sussex, and Surrey were conjectured; it is really in the third, but very near the other two, and exhibiting similar scenery to theirs.

Fifty years since, or less, perhaps, it was almost an unknown land except to the few whose business took them in that direction. Time has changed all. No longer are the cottages full of the curious furniture and domestic articles figured in this book; most have been carried off to make place for cheap modern goods. Some of these were old heirlooms, some purchased by the village folk at sales, to which there came down no London bidders. Numerous, and often singular, were the varieties of chairs that "Old West Surrey" could produce, some of which are figured, and a few may still be discovered. Sundry other antique articles remain, such as "cots" for warming muffins or cakes, rushlight-holders, standing toasting forks, skillets on legs, toby jugs, and so on.

So many mists in March,
So many frosts in May.

Thus runs a Surrey saying, at last as old as the days of Chaucer, "mist" and "frost" being made words of two syllables. The same thing is noticeable with other words. If true, it is encouraging this year, for on the whole we had a breezy March, fairly free from vapour, though there were some in April. Some West Surrey local names are peculiar, and these may still remain. The Ash is commonly called "twig-bean"; the fruits of the Sloe or Blackthorn are "winter-pickets," and the fern, very conspicuous about the county, is always farn. This appears in such local names as Farnham, also in several personal ones.

Amongst birds, the wagtail is a "dish-washer," the swift is a "squeaker," the wryneck is "rining bird," because it comes when the oak is stripped or rined of its bark. Old fashions of dress linger amongst the West Surrey folk, where we may yet see the smock-frock, relic of what De Quincey calls the immeasurable Roman toga. The shepherd's crook is extant, and the sheep-bell. Two of the notable local industries are birch-broom making and that of wattle hurdles. Many of the cottage gardens are almost crammed with flowers in the summer, Roses, Canterbury Bells, and Everlasting Peas being great favourites. Containing 330 illustrations, and printed on excellent paper, this volume is a marvel of cheapness.

THE "AGRICULTURAL ECONOMIST" for May, 1904, contains among others the following noteworthy articles: Mr. E. O. Greening, the editor, continues his survey of motors and their probable influence in agriculture; Mr. J. Darby ("Agricola" of "The Field") contributes an article on the effects of the fine spring on agriculture. Memoir, late Mr. W. F. Collier, J.P.

* "Old West Surrey, Some Notes and Memories." By Gertrude Jekyll Longmans, Green, & Co., 39, Paternoster Row, London. 13s. net.

Mandevilla suaveolens.

I should be glad if you could spare me a little space for a few notes on the history and culture of a beautiful greenhouse plant, namely, *Mandevilla suaveolens*. It was named in honour of Mr. H. J. Mandeville, formerly British Minister at Buenos Ayres. The *Mandevilla* here was for many years growing in a 7in pot, throwing up occasionally a poor, weak, and sickly growth, perhaps two in the course of twelve months. Two and a-half years since my employer thought he would try it planted out in a south border, in one of our greenhouses; a hole 2ft in depth by 2½ft wide was dug, one foot of brick rubble being placed at the bottom for drainage; the compost consisted of light loam, peat, and mortar rubble in equal parts. In this it is now well established, and manure water is given frequently through its growing season. I have never seen such a beautiful and luxuriant climbing greenhouse plant as the *Mandevilla* under the above treatment.

It commences flowering in early spring, throwing forth from the newly-made growths clusters of its pure white flowers, which are trumpet-shaped, and continues in bloom until the end of December. It is then pruned hard back, in the same manner as the Vines. It is now covering a space on the roof 10ft by 17ft, and looks charming.—A NORFOLK GARDENER.

[The plant alluded to is one of the most beautiful of greenhouse climbers. The flowers are pure white and exquisitely fragrant, and they are produced very freely during early summer, when the plant is in good condition. The shoots must be trained in a position where they will be well exposed to light, and it is advisable to allow some of the young growths to hang free, as the plant then has a more graceful appearance. Care is needed to keep the plant, as insects are frequently rather troublesome. During winter comparatively little water is needed, giving only sufficient to keep the soil moderately moist. Plants may be readily raised from seeds sown in spring.]

Societies.

R.H.S., Scientific Committee, May 3rd.

Present: Dr. M. T. Masters, F.R.S. (in the chair); Messrs. Odell, Sutton, Worsdell, Saunders, Massee, Holmes, Douglas and Chittenden; Drs. Cooke and Rendle; Revs. W. Wilks and G. Henslow (Hon. Sec.).

Rockets attacked by insects.—Mr. Saunders reported upon plants sent to the last meeting by Mr. Holmes: "The Rockets are attacked by the caterpillar of a small moth, one of the *Tineina*, probably *Plutella porrectella*, which Stainton says is a quiet garden insect, always to be found amongst *Hesperis matronalis*. The moth measures rather more than half an inch across the wings when they are fully expanded; the wings are whitish, streaked with brownish yellow."

Arabis albida, proliferous.—Mr. Chittenden showed sprays illustrating this form of "doubling," in which the calyx and corolla only are repeated on an elongated axis. It was mentioned that such occurred also in *Ranunculus amplexicaulis*, *Helianthemum* sp., the "Harper-Crewe" yellow Wallflower, Mr. Balchin's Mignonette, &c.

Capsicum without pungency.—Mr. Holmes exhibited a depressed globular form of fruit from Spain, the usual form being oblong; though possessing the scent of cayenne pepper, it has none of the pungency.

Bulbophyllum saurocephalum.—Mr. Odell showed a spike of this remarkable Orchid, as the stem is very thick, fleshy and purple, carrying small sessile flowers.

Osmanthus ilicifolia, dimorphic.—Dr. Masters showed a branch bearing both entire and spinescent leaves, proving that they were not different species, as some had supposed. The Holly not infrequently is similarly dimorphic.

National Auricula, Northern Section.

This society held its thirty-first annual show at the Coal Exchange, Manchester on Saturday, April 30. There was a good muster of growers, although nobody from the South or Midlands put in an appearance. The Stage Auriculas were not as good as last year, being rough in many cases, consequent upon the lateness of the season. As far as they were concerned the show would have been better a week later, but there was a surprisingly good and large display of Polyanthus; and alpine Auriculas were numerous and good.

There were not many novelties of note among the Stage Auriculas. Mr. Midgley's Letitia, which is to be let out this year, was there, and Mr. Stelfox had a good new grey edge, which looked like a cross between Traill's Beauty and George Rudd. Mr. Simonite showed his green edge Dr. Hardy, and

also a grey, called Atalanta, an excellent flower, but rather inclined to be a white. On the whole, the standard varieties showed themselves superior to the novelties, and most of them will have to be the mainstay of the exhibition for some years yet. Mr. Buckley had a fine Shirley Hibberd; Mr. Shipman an excellent Rachael; Acme was well shown, and in self Mrs. Potts, Ruby, and Gerald seemed to be the leading varieties. There were some excellent alpines exhibited, mostly seedlings. This flower, with its great capacity for improvement, is becoming very popular, and very deservedly so.

The most surprising feature of the show was the exhibit of Polyanthus, which were shown in larger numbers than ever before. Not only were they numerous, but good; especially Tiny and Mrs. Brownhill. Messrs. Lomas and Brownhill exhibited a number of new seedlings, both black and red

(Stalybridge) with Shirley Hibberd, Traill's Beauty, Acme, and Gerald; 2, Mr. W. H. Midgley with Rev. F. D. Horner, Geo. Rudd, Letitia, and Ruby; 3, Mr. T. Lord with A. Barker, G. Lightbody, Acme, and Sybil; 4, Mr. F. Dickens (Monton Green) with A. Barker, Geo. Lightbody, Acme, and Cleopatra; 5, Mr. W. M. Shipman with Shirley Hibberd, Geo. Rudd, Acme, and Ruby; 6, Mr. R. Gorton (Eccles) with H. Wilson, Lancashire Hero, Amy Robsart, and Mrs. Potts.

Class 3, pair of Auriculas.—1, Mr. J. Stelfox (Stalybridge) with George Stelfox and Mrs. Potts; 2, Mr. Simonite (Sheffield) with Dr. Hardy and Nymph; 3, Mr. J. Wood (Stalybridge) with Heatherbell, and Mrs. Potts; 4, Mr. Stringer (Middleton) with Acme and A. Barker; 5, Mr. Buckley with Acme and Ruby; 6, Mr. Gorton with Diomed and seedling; 7, Mr. Beaumont (Stalybridge) with Acme and Heroine.



Mandevilla suaveolens.

grounds, which will be much sought after when they are obtainable. Captain, Coronet, Foxhunter, and Firefly seemed to be the best of them. The premier Auricula was Dr. Hardy (green edge), exhibited by Mr. B. Simonite. Mr. Bentley had the premier alpine; Miss Baker, a light centred flower of large size and excellent properties, and Mr. Stringer got the premier prize for Polyanthus Mrs. Brownhill. The judges—Messrs. Prescott and Mottershead—made the following awards:—

Class 1, Six dissimilar Auriculas.—1, Mr. T. Lord (Todmorden), with Shirley Hibberd, Mrs. Dodwell, Geo. Lightbody, Acme, Mrs. Bentley, and Mrs. Potts; 2, Mr. W. H. Midgley (Halifax) with A. Barker, Geo. Lightbody, Geo. Rudd, Letitia, Ruby, and Gerald; 3, Mr. W. M. Shipman (Altrincham) with Rev. F. D. Horner, Rachael, Shirley Hibberd, Dr. Kidd, Heatherbell, and Gerald; 4, Mr. J. W. Bentley (Middleton) with Shirley Hibberd, Mrs. Henwood, Letitia, Geo. Lightbody, Geo. Rudd, and Ruby.

Class 2, four dissimilar Auriculas.—1, Mr. T. Buckley

Class 4, pairs for maiden growers.—1, Mr. F. Bolton (Blackley) with Geo. Lightbody and Acme.

Class 5, single green edges.—1 and 2, Mr. Lord with Mrs. Henwood and A. Barker; 3, Mr. Shipman with A. Barker; 4 and 5, Mr. Midgley with James Hannaford and seedling; 6, Mr. Dickens with Shirley Hibberd; 7, Mr. Stelfox with seedling; 8, Mr. Bentley with Jas. Hannaford.

Class 6, single grey edges.—1 and 4, Mr. Lord with R. Headly and G. Rudd; 2, Mr. Simonite with Atalanta; 3 and 6, Mr. Midgley with G. Rudd; 5, Mr. Stelfox with seedling; 7, Mr. Dickens and G. Rudd; 8, Mr. Shipman and G. Lightbody.

Class 7, single white edges.—1 and 3, Mr. Lord with Acme; 2, Mr. Beaumont with Acme; 4, Mr. Bolton with Acme; 5, Mr. Midgley with Mrs. Dodwell; 7, Mr. Stelfox with Heatherbell; 8, Mr. Shipman with Acme.

Class 8, single self.—1 and 3, Mr. Buckley with Mrs. Potts; 2 and 5, Mr. Midgley with Ruby; 4, Mr. Bentley with Jack

Bentley; 6, Mr. Lord with Mrs. Potts; 7 and 8, Mr. Beaumont with Mrs. Potts and Gerald.

Class 9, six dissimilar alpine.—1, Mr. Bentley with Coronation, Blue Bell, Queenie, Dr. Kershaw, Godiva, Enid; 2, Mr. Gorton with Mrs. L. Clark, Sweet Lavender, Vandyck, Firefly, Seedling 106, Princess Louise; 3, Mr. Beaumont, with Dolly, Mrs. Gorton, Firefly, C. W. Needham, Mrs. M. Smith, Mrs. H. Turner; 4, Mr. Stelfox with Bright-eyes, Exonian, Dr. Durnford, John Allen, and seedlings; 5, Mr. G. Geggie (Sale) with C. Turner, Mrs. Gorton, Firefly, and seedlings.

Class 10, four dissimilar alpine.—1, Mr. Bentley with Benthorne, Placida, Miss Baker, and Orangeman; 2, Mr. Geggie with Pluto, Thetis, Gladys, and A. R. Brown; 3, Mr. Beaumont with Dr. Durnford, Mrs. Gorton, Patience and Firefly; 4, Mr. Lord with Dean Hole, Judith, Bright-eyes, and Thetis; 5, Mr. Stelfox with Nonsuch, Bright-eyes, and seedlings; 6, Mr. Buckley with Mrs. Correll, Dr. Durnford, Bright-eyes, and Mrs. Martin.

Class 11, pair of alpine.—1, Mr. Buckley with Mrs. M. Smith and Firefly; 2, Mr. Edgley (Sale) with Dr. Durnford and Mrs. Turner; 3, Mr. Bolton with Pluto and Dr. Durnford; 4, Mr. Dickens with seedlings; 5, Mr. Stringer with Dr. Knott and John Allen; 6, Mr. W. Hughes (Sale) with Exonian and John Allen.

Class 12, pair of alpine (new growers).—1, Mr. Bolton with Pluto and Dr. Durnford; 2, Mr. Hughes with Exonian and John Allen.

Class 13, single plants (yellow centres).—1 and 4, Mr. Geggie with Duke of York; 2, Mr. Gorton with seedling; 3, Mr. Bentley with Pluto; 5, Mr. Lord with Pluto; 6, Mr. Stringer with Dean Hole.

Class 14, single plants (white centres).—1 and 2, Mr. Bentley, with Miss Baker and Miss Vernon; 3 and 4, Mr. Beaumont with Mrs. H. Turner; 5, Mr. Gorton with Sweet Lavender; 6, Mr. Stringer with Beauty.

Class 15, three black-ground Polyanthus.—1, Mr. J. Lomas (Sudley), with James Turner, Trilby, and Mrs. Brownhill; 2, Mr. G. Thornley (Middleton) with Tiny, Mrs. Brownhill, and Sarah Holden; 3, Mr. Bentley with Tiny, Mrs. Brownhill, and Sarah Holden; 4, Mr. Stringer with Tiny, Mrs. Brownhill, and James Turner.

Class 16, three red-ground Polyanthus.—1, Mr. H. Brownhill with Forester, Forerunner, and Firefly (all seedlings); 2, Mr. Lomas with Foxhunter, Middleton Favourite, and Firefly; 3, Mr. Thornley with George IV., Sidney Smith, and seedling; 4, Mr. Geggie with Goldfinch and two seedlings.

Class 17, single black-ground Polyanthus.—1, Mr. Stringer with Mrs. Brownhill; 2, Mr. Brownhill with Mrs. Brownhill; 3, Mr. Stringer with Mrs. Brownhill; 4, Mr. Brownhill with Captain; 5, Mr. Lomas with Mrs. Brownhill.

Class 18, single red-ground ditto.—1 and 2, Mr. Brownhill with Foxhunter; 3 and 4, Mr. Geggie with Goldfinch; 5, Mr. Bentley with Middleton Favourite.

First-class certificates were awarded to Mr. Stelfox for new grey-edged Auricula George Stelfox; and to Mr. Bentley for light-centred alpine Miss Baker.

Metropolitan Public Gardens' Association.

OPEN SPACES.—At the monthly meeting of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W., on Wednesday afternoon, Sir William Vincent, Bart., vice-chairman, presiding, it was agreed to undertake the laying out of St. Nicholas, Deptford, churchyard, subject to an adequate guarantee for the maintenance being obtained from the Bishop of Southwark. Communications were received from the incumbents of St. Mary's Whitechapel, and St. Stephen's North Bow, stating that they did not wish the churchyards to be opened to the general public. Progress was reported with regard to the transfer of Poplar churchyard to the Borough Council. It was stated that, including the £8,000 voted by the London County Council, about £34,000 had now been provided for the Hampstead Heath Extension Scheme, and that the attention of the joint committee, upon which the association is represented, was being directed to the raising of the balance, about £14,000. Seats were granted for a site near St. Mary Abbott's, Kensington, and for St. Mary, Aldermanbury, and St. Botolph's, Billingsgate, churchyards.

The much-needed Bill for the consolidation of the Open Spaces Acts, introduced into the House of Lords by the Board of Agriculture, was considered, and it was agreed to submit certain amendments to the Board for insertion therein. Attention was also drawn to the Liverpool and Wigan Churches Bill, which seeks power to dispose of a number of disused churchyards for building purposes, and thereby to over-ride the public law, and to the Board of Education (London) Bill for the acquisition for school purposes of the interesting Wyeliffe Chapel and graveyard, Phillpot Street, Stepney.

It was stated that the association was erecting drinking fountains at Windsor Terrace, City Road, and Addington Square Garden, Camberwell, with funds provided by an anonymous donor, and that another gift of a like nature had been

promised by Mr. Passmore Edwards, for one of the association's grounds. It was decided to resist the threatened attempt to modify the law, which at present safeguards disused churchyards and burial grounds from being utilised as building sites, at these grounds, whether large or small, were invaluable as lungs and airholes, especially when secured and laid out as public gardens, as evidenced by work of this character, in which the association had been actively engaged for the past twenty years.

Edinburgh Seed Trade Assistants.

The seed-trade assistants of Edinburgh are a very friendly social body of most intelligent young men. Their annual reunion is a well-known, successful, festive function, when they and their friends meet to enjoy a "feast of reason and flow of soul"; and learn to know each other better, and appreciate each other in a manner unattainable in the ordinary course of business. They are led by a very capable and efficient committee, who have the best interests of the young men at heart, and this season the committee, fully alive to the importance of the men being thoroughly up-to-date in everything connected with the Trade, have arranged a number of Saturday afternoon excursions during the summer months to places of horticultural interest.

The first of these excursions took place on Saturday, April 30, when a four-in-hand conveyed fully thirty members to Dalhousie Castle, eight miles from Edinburgh, at present the residence of C. W. Cowan, Esq. (formerly of Penicuik), who is widely known as a keen horticulturist in general, but especially as a lover of Daffodils and Narcissus, and whose collection of these contains not only all approved sorts of established reputation, but the cream of all recent novelties. The drive was most pleasurable, through a well farmed and wooded country, in fine, breezy, sunny weather. Mr. Cowan met the company on arrival, and personally conducted his visitors over the grounds, showing them all its interesting features; but the Daffodils were the great source of attraction, and for more than an hour the young men gave them a very close and appreciative inspection. Planted in beds they were most effective, being just about their best for the season, and they showed that they were under most careful treatment.

A large number are also planted in grass, and seem to enjoy this better than in cultivated ground. The leading old sorts need hardly be named here, as they occur in every collection; but the visitors were much interested in the many new varieties, which are yet practically unknown in Scotland. The most noticeable among trumpets were King Alfred, Van Waveren's Giant, Lord Roberts, Weardale Perfection, Shakespeare, Glory of Noordwijk, &c., with such sorts as Glory of Leiden, Madame de Graaff, Madame Plomp, Gold Cup, Hodsoek's Pride, were very prominent.

The shorter-cupped novelties were very numerous and dainty, and attracted great admiration. Sensation, Grand Duchess, Lucifer (very beautiful), Will Searlet, Queen Alexandra, Seagull, Firebrand, Torch, Dorothy York, Maggie May, Brigadier, Albatross (most dainty), Flambeau, Dorothy Kingmill, Lady



Plan of a carpet-bed.

- | | |
|---|---|
| 1, <i>Coleus Verschaffelti</i> . | 5, <i>Pyrethrum Golden Feather</i> . |
| 2, <i>Sempervivum montanum</i> . | 6, <i>Pachyphytum bracteosum</i> . |
| 3, <i>Sedum glaucum</i> . | 7, <i>Mentha Pulegium gibraltaria</i> . |
| 4, <i>Alternanthera versicolor grande</i> . | 8, <i>Alternanthera amoen</i> . |

Margaret Boscawen, and many others were the most attractive of a very beautiful and comprehensive collection. Many other subjects in the gardens were well done, and were closely noted, the border flowers being quite a feature; and in the houses everything was in the best of health and beauty. After a thorough look round, and on the motion of Mr. Henry Erskine, a most enthusiastic vote of thanks to Mr. Cowan for his kindly courtesy, the company took leave and drove to Dalkeith, where, at the Cross-keys Inn they partook of an excellent tea, and had about an hour of enjoyable song and sentiment, Mr. M. Todd proposing the toast of the "Seed-trade Assistants."

The drive back to Edinburgh was most delightful, and the company reached there at nine o'clock in the best of spirits. Much praise is due to Mr. Parker (of Laird's), Mr. Tait (of Downie's), Mr. Chalmers (D. W. Thomson), and to Mr. Greig (of Methven's) for the manner in which they carried out the arrangements. It may be mentioned that the company represented fully twelve firms of the Edinburgh seed trade.

National Fruit Growers' Federation.

The annual general meeting was held at the Caxton Hall, Westminster, on Monday, May 9th. There was a fair attendance, considering that the present is a busy time for growers. Colonel Long, M.P., took the chair, and he was supported by Mr. F. S. W. Cornwallis, the president elect. Amongst those present were Messrs. W. Craze, S. Bowman, Jno. Wood, F. Smith, C. H. Hooper, E. Vinson, G. E. Champion, W. C. Plowman, H. Lency, A. H. H. Matthews, H. T. Manwaring, P. Manwaring, R. Hincks, W. Idiens, W. Horne, C. C. Moberley, W. H. Skinner, and other well-known growers.

The chairman presented the report of the Executive Council, and in doing so he congratulated the members on the steady growth of the Federation, which had increased in numbers by 121 since the last annual meeting. Referring to the Departmental Committee now sitting on fruit culture, he mentioned several subjects which had already occupied its attention. Amongst these were the suggestions of a small special department being created to watch over the interests of fruit growers; a scheme for instructing and training gardeners; assessment of farmland planted with fruit; railway rates; and sewage vegetables. He then alluded to the recent appointment of another departmental Committee on preferential railway rates, and urged that members of the Federation should send in any information they possess on the subject, in order that it may be brought before the committee. Mr. Craze seconded the adoption of the report.

Mr. A. H. H. Matthews, referring to the assessment of fruit land, said the question was affected by the Valuation Bill now before Parliament. He also dealt with the constitution of the Committee of Inquiry on Preferential Rates, and pointed out that the railway interest was unduly represented as compared to that of agriculture. After some further discussion the report was adopted.

Colonel Long then vacated the chair, which was taken by Mr. Cornwallis, who addressed the meeting on entering upon his year of office as President. Being then compelled to leave, the chair was resumed by Colonel Long. Mr. A. H. H. Matthews then moved that Colonel Long be appointed as president elect for 1905-6. Mr. Vinson seconded the motion, which was carried by acclamation. Mr. A. Miskin was appointed hon. treasurer, and, eleven members of the council retiring by rotation, were, with one exception, re-appointed.

A very interesting discussion then took place on the importation of pulp for jam-making, and Mr. Moore, of Tasmania, in the course of an address, brought forward many important facts. In his opinion, although the soil and climate of Tasmania and some parts of Australia were well adapted to the growth of fruit, the difficulties attending the industry were such that the growers in this country need not fear their competition. He admitted that the very best jam was, after all, made from fresh gathered fruit, and the imported pulp arrived in this country at a different time of year to that of the ripening of British crops. Several members said they could not agree with this view, as the fruit in a pulped state was independent of the season, and could be placed on the market at any time. Mr. Moore then presented specimen jars of jam to most of those present, which was made from Tasmanian pulp, and also exhibited tins of Black Currant and Raspberry pulp, which were pronounced excellent, and far superior to much of that imported from the Continent.

The meeting closed with a vote of thanks to Colonel Long for the invaluable services he had rendered to the Federation and the fruit growers generally during his year of office.

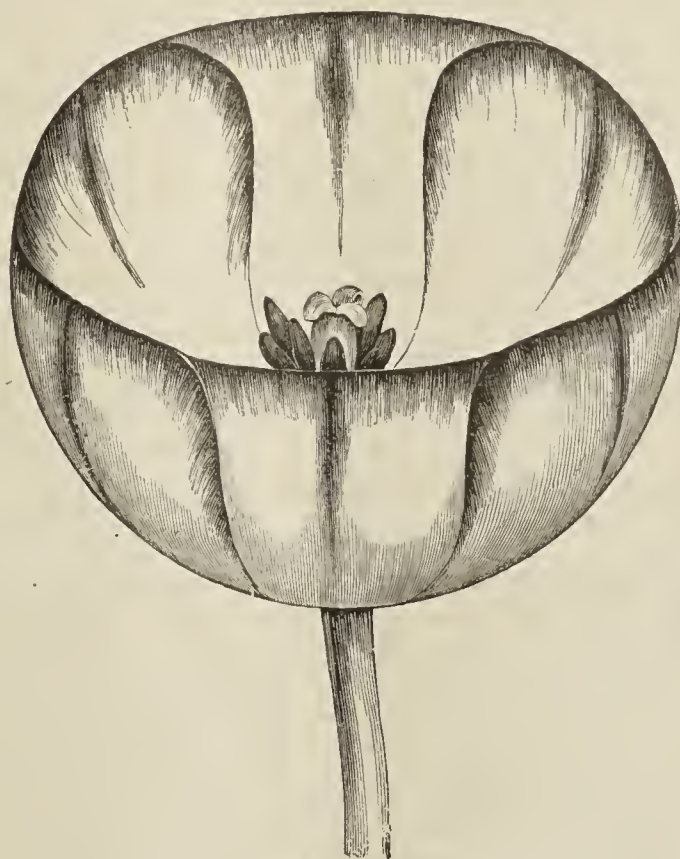
Donations for the Royal Horticultural Hall.

Amongst the most recent donations to the Building Fund for the Horticultural Hall of the R.H.S., is, we are pleased to see, one for £25 from Messrs. Smith and Ebbs, Ltd., of Northumberland Alley, Fenchurch Street, stationers to the society.

The Florists' Tulip.

Florists call Tulips seedlings until they have bloomed; after this those preserved on account of their good form and habit, as well as the offsets they produce, are called breeders. After some years the petals of these become striped, and they are then said to be broken. If the striping is good, they are said to have a good strain; if it be inferior, they are described as having a bad strain. A rectified Tulip is synonymous with a Tulip having a good strain. A feathered Tulip has a dark-coloured edge round its petals, gradually becoming lighter on the margin next the centre of the petal; the feathering is said to be light, if narrow; heavy, if broad; and irregular if its inner edge has a broken outline. A flamed Tulip is one that has a dark-pointed spot, somewhat in shape like the flame of a candle, in the centre of each petal. Sometimes a Tulip is both feathered and flamed. A bizarre Tulip has a yellow ground, and coloured marks on its petals. A byblœmen is white, marked with black, lilac, or purple. A rose is white, with marks of crimson, pink, or scarlet.

CHARACTERISTICS OF A GOOD TULIP.—1. The cup, when fully expanded, should form, as nearly as possible, half of a hollow ball. The petals, six in number, must be broad at the ends,



The florists' feathered Tulip.

smooth at the edges, and the divisions where the petals meet scarcely showing an indentation. 2. The three inner petals should set close to the three outer ones, and the whole should be broad enough to allow of the fullest expansion without quivering (as it is called), that is, exhibiting any vacancy between the petals. 3. The petals should be thick, smooth, and stiff, and keep their form well. 4. The ground colour should be clear and distinct, whether white or yellow. The least stain, even at the lower end of the petal, would render a Tulip comparatively valueless. 5. Whatever the colours or marks upon a Tulip, all the petals should be marked alike, and be perfectly uniform. 6. The feathered flowers should have an even, close feathering all round, and whether the feathering be narrow or wide, light or heavy, it should reach far enough round the petals to form, when they are expanded, an unbroken edging all round.

7. If the flower has any marking besides the feathering at the edge, it should be a beam, or bold mark down the centre, but not to reach the bottom, or near the bottom of the cup; the mark or beam must be similar in all the six petals. 8. Flowers not feathered, and with a flame only, must have no marks on the edges of the flower. None of the colour must break through to the edge. The colour may be in any form not in blotches, so that it be perfectly uniform in all the petals, and does not go too near the bottom. 9. The colour, whatever it be, must be dense and decided. Whether it be delicate and light, or bright, or dark, it must be distinct in its outline, and not shaded or flushed or broken. 10. The height of a Tulip should be from 18in to 36in: the shortest is proper for the outside row in a bed, and the tallest for the highest row. 11. The purity of the white, and the brightness of the yellow ground colours, should be permanent, that is to say, should continue until the petals actually fall. Early in September is a good time for preparing the Tulip bed.



Fruit Forcing.

CUCUMBERS.—If aphides or thrips appear fumigate on a calm evening, and repeat the following morning as early as daylight, having the foliage dry, but the floors well damped. With a proper amount of atmospheric moisture, and supplies of water at the roots, red spider will not give much trouble, but this pest with white fly and mildew may be kept down by lightly coating the hot water pipes with sulphur. Plants that have been in bearing some time will be showing signs of exhaustion, and should be removed, clearing out the old soil, thoroughly cleansing the house, and putting out healthy plants in new compost. This is better than striving to renovate old plants. Assist young plants showing signs of weakness by removing the staminate flowers and the first fruits, stopping at every unird joint or thereabout, cutting off all weakly and superfluous growths. Shading will be necessary for an hour or two in the middle of the day when the sun is hot, especially houses facing south. Little or no fire heat will be required by day, shutting the valves at about eight a.m., and opening them again at about five p.m. Syringe the plants moderately between three and four p.m., keeping a moist atmosphere all day by damping the floors.

SOW SEEDS FOR RAISING PLANTS to occupy pits and frames as they become cleared of forced vegetable crops and bedding plants. A fair bottom heat should be secured by using the less decomposed material from Vine borders or exhausted hotbeds, which, with about one-fourth of fresh material, will afford all the bottom heat now required. The nights have lately been cold, in which case close pits and frames as early in the afternoon as safe, not allowing the temperature to exceed 90deg to 95deg, and afford good night coverings. The bottom heat must be maintained by daily renewing the linings.

PEACHES AND NECTARINES: EARLY HOUSES.—Trees started at the new year, and the varieties Alexander, Waterloo, Duchess of Cornwall, Amsden June, and Early Rivers Peaches, Cardinal and Early Rivers Nectarines, are now ripening the fruit, and must not be syringed; but Hale's Early, A Bec, Dr. Hogg, Dymond, or Grosse Mignonne, Stirling Castle, Royal George, and Crimson Galande Peaches, with Lord Napier, Rivers' Orange, Humboldi, and Stanwick Elruge Nectarines are only about completed stoning, and must be syringed up to the fruit commencing to ripen. If the fruits on these trees are too thick, remove the smallest, apportioning the crop to the vigour of the trees. Draw the leaves aside or even shorten them, so as to expose the fruit to light, raising such as require it on thin laths placed across the wires of the trellis with their apexes to the light of the sun. Maintain a good moisture in the house, but never a stagnant atmosphere. Water the inside border copiously, and mulch the surface with about an inch thickness of short, rather lumpy manure. If the fruit is required ripe as soon as possible, maintain a night temperature of 65deg, 70deg to 75deg by day, with 80deg to 85deg or 90deg from sun heat, but it is better for the trees to continue 60deg to 65deg as the night temperature, 65deg artificially by day in dull weather, 70deg to 75deg with sun heat, closing at the latter.

HOUSES STARTED IN FEBRUARY.—The fruit being in the early stages of stoning should be reduced to two on strong shoots, and one on the weaker, not leaving too many, for there is danger of their not stoning in that case, whilst they will be small if they should stone. Retain in all cases the fruit best situated for stoning in presence of light and air. Thin the shoots where crowded, pinching laterals to one leaf, and secure the growths to the trellis as they advance. Syringe the trees twice a day in bright weather, but only once in dull, and not then if the foliage does not become dry before nightfall, or it will be found dripping with moisture in the morning. The temperature by artificial means may be kept at 55deg to 60deg at night, and 60deg to 65deg by day, ventilating from 65deg, and fully between 70deg and 75deg. Supply water to the roots as required, affording weakly trees, and those carrying heavy crops, top-dressings of fertilisers occasionally, say every fortnight or three weeks, washing them in moderately, or afford liquid manure, alternated with the waterings.

TREES STARTED IN MARCH.—Thin the fruit now that it is swelling freely, and choice can be made of the most promising for the crop. Reserve those on the upper side or front of the trellis, two or three on strong shoots will be ample to leave, and proportionately fewer on weakly growths. Remove all superfluous shoots gradually, retaining those only for attracting

the sap to the fruit, which stop at two or three joints, and those from the base of the present bearing wood for furnishing fruit another season, with such extensions as are necessary. Train the growths as they advance, securing them loosely to the trellis. Afford liquid manure to such as require more vigour, but avoid stimulating trees too much, as that will encourage wood at the expense of the fruit in stoning. Keep red spider under by syringing, and if aphides or other pests appear promptly apply an insecticide.

LATE HOUSES.—The fruits have set well, and should be thinned as soon as the best can be decided upon by their taking the lead in swelling. Remove the smallest and worst-placed first, leaving a few more only than will be required for the crops, but regard must be had to the vigour of the trees, and their liability to cast some of the fruit or otherwise in stoning. Disbudding and tying in the shoots should be carefully attended to, doing the first gradually, and the latter with due regard to the swelling of the shoots. A temperature of 50deg at night and 55deg by day artificially will be sufficient to keep the trees in steady progress. Ventilate freely about that unless it is desirable to hasten the crop, when a temperature of 55deg at night and 60deg to 65deg by day may be secured, with 70deg to 75deg from sun heat, ventilating from 65deg. Syringe the trees in the morning and on fine afternoons.

UNHEATED HOUSES.—Commence thinning the fruits as soon as they are the size of Horse Beans. Overburdening the trees in the early stages of the fruit swelling prevents their making wood for another season's crop, while excessive disbudding may cause the fruit to fall or a strong growth to be made. A moderate syringing on fine mornings will be a great assistance in ridding the trees of the remains of the blossoms, but afternoon syringings are not advisable. Ventilate at 50deg, not allowing an advance above 65deg without full ventilation, and close at 50deg, or before if there is a prospect of frost.—G. A., St. Albans, Herts.

The Flower Garden.

HARDENING BEDDING PLANTS.—It is much too close, warm, and moist now for Geraniums in pots or other subjects in pots or boxes, which may be well rooted and of good size, to remain longer under glass in shade and warmth. It is therefore desirable to place them in frames, where they can not only have abundance of light, but as much ventilation as possible, to gradually inure them to outdoor conditions. At first keep them shaded from fierce sunshine, which may discolour the foliage. Attend carefully to the watering. Neglect of this when the pots are full of roots and the plants are in frames causes loss of leaves. Seedling plants or cuttings of various annuals, as soon as established in heat and moisture, must receive cool and light treatment, eventually placing them in frames and gradually exposing to the open.

PROPAGATING ALTERNANTHERAS, IRESINES, AND COLEUS.—Young cuttings are readily propagated now in a slight hotbed, which may be made up with mixture of manure and leaves, covering with 3in of sandy soil. Cuttings will also strike in shallow boxes in a heated house, or round the edges of small pots.

PYRETHRUM AUREUM.—This yellow foliage plant comes in useful in many bedding arrangements. Small plants are better than large, so if seed is sown thinly now in pans or boxes, suitable plants will be available at bedding time.

EARLY FLOWERING CHRYSANTHEMUMS.—To meet the demand for cut flowers, the early flowering Chrysanthemums are indispensable. They associate well with any other flowers that are in season at their blooming period, August and September, and the early part of October. Grow them either with other subjects in the herbaceous border, or in a quarter to themselves. Small bushy plants may now be planted out, 2ft apart, in rows 2ft to 3ft asunder. In borders do not grow them so closely together, so as to permit of other things succeeding. Six or 8ft apart will do very well. Among the most useful varieties are:—Japanese: Claret Belle (crimson), Crimson Marie Masse; Golden Queen of the Earlies (yellow), Harvest Home (red, with gold tips), Lemon Queen (yellow), Mme Desgranges (white), Mme Marie Masse (lilac mauve), May Manser (creamy white), Mytchett Glory (bronzy yellow), Mytchett (white), Nellie Brown (reddish orange), Ryecroft Glory (bronze, tinted yellow), Ryecroft Scarlet. Pompons: Fiberta (canary yellow), Flora (golden yellow), Lyon (rosy purple), Précocité (yellow), Mrs. Cullingford (blush white), White St. Crofts, Piercey Seedling (bronze).

HERBACEOUS BORDERS.—Frequent attention should be accorded the various plants in the herbaceous border, thinning out weakly and crowded stems, and, if required, supporting those becoming tall and advancing to flowering. Annuals that are growing should receive their first thinning, and more seeds may be sown of Mignonette, Poppies, Nasturtiums, or of any kinds that have not started well. Hoe among the established plants in the border to promote growth and destroy weeds.

NEWLY PLANTED SHRUBS.—Conifers or other evergreen shrubs recently lifted and planted, if showing any signs of dryness, should be watered at the roots, afterwards affording a mulching of short manure. Syringing in the evening of warm days will also be beneficial.—E. D. S., Gravesend.

The Kitchen Garden.

THINNING CROPS.—It is most important that all crops such as Carrots, Onions, Parsnips, Turnips, and the like should be thinned at the earliest possible moment. At this season of the year newly-sown crops grow very rapidly, and soon become crowded. Especially is this the case where seed has been used liberally. As soon as the thinning has been completed, the Dutch hoe should be run carefully between the rows.

SOWING PEAS.—A good breadth of the Marrow Peas should now be sown to keep up a succession. Where the soil is light, trenches should be dug out, and a liberal dressing of good fat manure placed in these. Cover with the soil, leaving a slight hollow, in order that as much of the rain should find its way to the roots after falling from the foliage. Peas treated in this way will withstand drought well.

PRICKING OFF.—All kinds of plants for the winter stock should be pricked off as they become large enough to handle. Such things as Cauliflowers, Brussels Sprouts, and Cabbages should be attended to as soon as possible. Should the weather become warm and dry, watering must be attended to, especially in the case of newly planted Cauliflowers. A check of any kind generally proves fatal to these.

BRUSSELS SPROUTS.—Where early supplies are required, either for exhibition or general use, no time should be lost in planting some of the earliest-raised plants of these. The soil should be deep and rich, but firm. It is a mistake to plant these on recently trenched ground. It causes a soft growth, which produces few good sprouts, and the plant generally falls over on one side. The ground should be prepared some time in advance of planting, in order that it may have settled down firmly.

TURNIPS.—A frequent sowing of these should be made, giving preference to a north border, as they soon become stringy and hot to the taste if checked by drought.

LETTUCES.—Transplant Lettuces into rich soil as they become ready in the seed-bed, and sow a little more seed of both Cabbage and Cos kinds.

RUNNER BEANS.—These should now be planted. Prepare trenches as for Celery, but fill these in nearly level with the surface. But a slight hollow should be left, as for Peas. The seed should be carefully tested before sowing, especially if home saved.—A. T., Cirencester.

Trade Catalogues Received.

A. F. Dutton, The Nurseries, Bexley Heath, Kent.—*Price List of Tree Carnations.*

Timothy and Sandwith, Bracknell.—*Horticultural Sundries.*

Thomas S. Ware, Ltd., Ware's Nurseries, Feltham, Middlesex.—*Dahlias, Begonias.*

Tree Growing for Profit.

Mr. A. C. Forbes, of the Marquis of Bath's Longleat Nurseries, read before the Farmers' Club, at 2, Whitehall Court, a paper on "Forestry as a Rural Industry." Reminding the meeting of Professor Schlich's view that twenty years hence there will be a timber famine, Mr. Forbes calculated that while only about 2,000,000 acres of land in Great Britain are devoted to timber not purely ornamental, the coal and railway industries of the United Kingdom annually need the produce of 5,250,000 acres of forest land. One of the advantages of doing more to grow trees for profit would be an increase in the number of skilled and hardy labourers living in the country. Discussing the prospect from the landowners' point of view, he maintained that the planting of wastes or poor agricultural land offered every promise of commercial success if carried out on proper lines. Only a few of the most suitable species of trees must be planted. Bults instead of samples must be sought, and large compact areas used. The timber should be allowed to stand till it was mature, but no longer. With the existing available land shared by many different owners, the choice of species and the extent of planting operations were difficult to regulate, but landlords should co-operate, and, if possible, secure Government help in the shape of loans on special terms. As the country included about 13,000,000 acres of wastes and rough grazing ground, the average rent of which did not exceed half a crown an acre, the present area of woodland might be doubled without hurting agriculture. But the first step to be taken was the proper utilisation of existing woodland, much of which was practically waste, and the public should realise the fact that economic forestry was a national question.

Young Gardeners' Domain.

The Editor welcomes short letters from under gardeners. Letters should be confined to 500 words in length, should be written only on one side of the paper, as clearly as possible, with one inch space at both top and bottom, as well as at the sides. The names and addresses of the writers must accompany all communications, not necessarily for publication, but as a guarantee of good faith. If these points are not respected, the letters cannot be considered.

Examination in Horticulture.

The following comments appeared in the "Gardening World":—The annual examination in horticulture, under the auspices of the Royal Horticultural Society, was held on April 20, and the questions asked seem to be getting more and more difficult, or, at least, lengthy. The examination lasted for three hours, the first one and a-half hours being devoted to the elementary principles of gardening, and the second half of the time to horticultural operations and practice, the examination, of course, being in written form. The second half of the examination seems to have been difficult chiefly on account of the lengthy nature of the answers that might have been given, though we are not quite sure whether lengthy answers were expected, or that the questions were so set as to find out what knowledge the student had of the subject.

Eight questions in each division were put in the papers, but of course only half of the questions—that is, four from each division—were to be attempted by the student. Even then, however, if the student was well acquainted with the subject asked, he would have been unable to properly express himself in the time at command. For instance, one question asked:—"Which were the best fruit trees and bushes for garden cultivation?" Some students might think they had to give the varieties of each kind of fruit tree, and, if such were the case, quite a book might be written upon the subject, especially when asked to deal with propagation and the subsequent treatment necessary for the trees. As this was one out of four questions to be answered in one and a-half hours, it would take a master in the art of description to give his opinion in so few words that they could be written down in the time at command.

Yet again, a question required an account of a conservatory and its occupants; that is, the student had to describe how it could be kept gay all the year round, and not only so, but to give the culture of the principal occupants.

Another somewhat tiresome question related to common diseases caused by fungi and insects which live upon vegetables. This question also admits of a large amount of interpretation, as, according to garden usage, it would include the Tomato and its varied enemies, which are certainly troublesome. It would also include a host of subjects which attack the Cabbage tribe, others that attack Onions, Carrots, Parsnips, Celery, &c. This lengthy question would also include remedies for the various enemies which the student might describe. To mention only the common ones would require considerable space and time, and with more time at command the writer could amplify his subject into quite a book.

We presume, however, that the student who attacked the subject by dealing very clearly with a few of the common enemies would have just as much chance of passing the examination as those with a much more extensive knowledge of the subject. If this is not the interpretation of it, the question could not be dealt with in anything like a satisfactory manner in the time allowed. Another question also admits of a very wide interpretation, as it deals with ornamental trees and shrubs, of which the student was expected to give the names. Evergreen and deciduous subjects had to be taken into account, and the student was required to deal with the propagation of certain of them.

Some Forthcoming Events.

May 17.—Annual dinner of the Royal Gardeners' Orphan Fund at the Hotel Cecil. R.H.S. Show in Drill Hall.

May 19.—Bath and West of England Horticultural Show at Swansea (five days).

May 25.—Edinburgh spring show (two days).

May 30.—Kew Guild dinner.

May 31.—Temple Flower Show (three days). Great orchid sale at Protheroe and Morris's rooms, Cheapside.

June 1.—Meeting of professional gardeners in London to consider the permanent formation of a National Gardeners' Association.

June 6.—Grand horticultural exhibition, Royal Botanic Society, Regent's Park (five days).

THE BEE-KEEPER.

When to Start Bee-keeping.

This is often a subject which causes considerable excitement in the minds of the would-be bee-keepers. Many are tempted to purchase a stock, i.e., bees and hive too. This is one of the most expensive and sometimes the most disastrous modes of starting, because you may be buying bees in a most foul-broody state, and to those who know nothing of the art, I would say do not buy a stock unless you can thoroughly trust the seller, or only on the advice of a practical hand. This will vary from 7s. to £2, according to the hive. If the bees be in a skep, the value will be from 7s. to 15s., but in the case of a bar-frame hive it may reach the £2.

Before settling the matter make sure that there are a fair number of bees, and above all a fertile queen. If the bees be in a skep, drive them, and press the combs aside to ascertain if there be brood. This inspection can easily be made if it be a wooden hive with frames, and in this case the bees ought to cover at least seven frames.

The best time to purchase a stock is about the end of March or beginning of April, because at that time there are less stores, so combs are not so liable to break down and destroy the bees. If bees are purchased during the period of rest, the moving causes excitement among the inmates, which often leads to loss; but this excitement in late March or April may act as a stimulant and be productive of good.

WHAT TO DO WITH A SKEP OF BEES.—No one in these days of progress would think of keeping the bees in a straw skep. There are two ways of transferring them to a bar-frame. The simplest mode would be to fit up the frames with full sheets of foundation, and place the skep above them, covering the whole up warmly, and letting the bees transfer themselves. This, however, is not the most profitable mode. Drive the bees from the skep as follows:—Give the bees about half a pint of warm syrup, and wait about ten minutes to allow the insects to gorge themselves. Take a bucket, and invert the hive to be driven in it. Over this place an empty skep, so that the rims meet, and rap the sides of the lower skep, and in 15 to 30 minutes the bees will be above. Take out the combs and cut them to the size of the frames, and tie in with tape, taking care (1) to keep them the correct way up; (2) to reject all drone comb; (3) to leave no space between the top of the comb and the top bar, and (4) to allow no brood to be chilled. Having cut out all comb, and spaced the frames, tip the bees on the top, wrap up warmly, and feed.

A SWARM.—A cheaper way of commencing is by purchasing a good swarm as early as possible; this will be in May or June. The swarm to be of benefit the first year should be a large one, and should not be less than 1½ galls to 2 galls of bees. Remove them in the evening after about 6 p.m., and hive as above.

It will be well to commence with one stock only, and as you gain experience and confidence extend your apiary. There is one point ought to be mentioned, and that is the stock ought to be one that had swarmed last year, and the swarm from a similar stock.—HYBLA.

Dead Larvæ at Hive Entrances.

If from any cause some colonies have been induced to breed freely, and are consequently in a forward condition, they will be in considerable danger should a spell of cold, unseasonable weather be now experienced, and through lack of income dead white bees will then be thrown out at the entrances. This may in some cases also be caused by the bees having to crowd together for additional warmth until they are unable to cover all their brood, and if the latter is then chilled it is thrown out similarly to when there is a scarcity of food.

Such a state of things should not be allowed to happen, and probably will not in a well-regulated apiary, as it not only throws a colony back in the production of young bees, but during the nursing and feeding of these young bees considerable vitality has been expended, which necessarily shortens the lives of the old workers, and which is altogether wasted. Feeding should then never be neglected, as it is an absolute necessity at such times. During spring the expenditure of food is constant and increasing, and if the income from natural sources is "nil" artificial feeding must be resorted to at once and kept up. Much of the so-called "bad luck" of bee-keepers would be avoided if more attention was paid to such apparently trivial matters as timely feeding, cleaning floor boards, taking note of the condition of colonies, and anticipating their wants, &c.

As a rule, it happens that some colonies in an apiary may be short of stores, while others have a superabundance. Where this is the case it should be divided amongst those in want, and if a little is uncapped daily it will stimulate the queen, and will

be found much better than giving them additional food. The heat of the brood chamber may be conserved with advantage and ease by contracting same by means of dummies to the space actually occupied by the bees. A compact brood nest goes a long way towards success in increasing the production of brood. Robbing should also now be guarded against. Weak stocks are, as a rule, the victims, and during spring it is carried on so quietly as to be almost imperceptible, except to the practised eye. The spilling of syrup about the hives, or leaving feeders uncovered, are frequent causes of robbing. All weak colonies must have the entrances contracted until there is only passage way for one or two bees at a time.—E. E., Sandbach.

TO CORRESPONDENTS

* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

WHAT ARE THE QUICKER GROWING TREES FOR SHELTER BELTS (Inquirer).—Of deciduous trees, the Mountain Elm (*Ulmus montana*), American Winged Elm (*Ulmus alata*), and Huntingdon Elm (*Ulmus glabra* vegeta), are first rate, also the Canadian Poplar (*Populus monilifera* syn. *P. canadensis*); of evergreen trees the Austrian, Corsican, and Scots Pines (*Pinus austriaca*, *P. laricio*, and *P. sylvestris*), the Austrian being placed in the outer line.

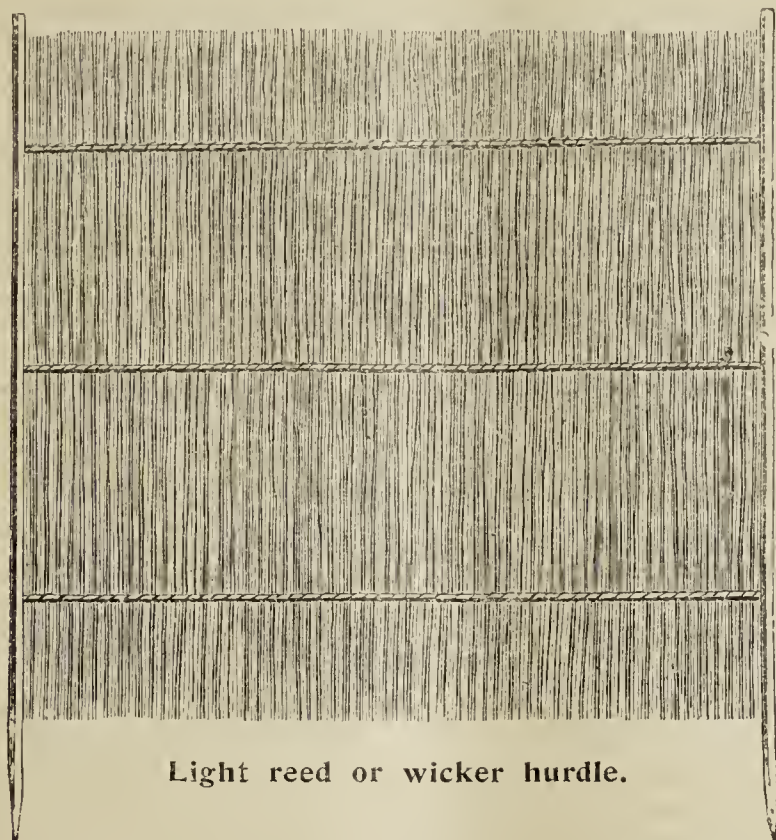
TWELVE GOOD AND DIVERSIFIED AQUATIC PLANTS (G. A.).—*Nymphaea Laydekeri rosea*, *N. Marliacea chromatella*, *N. Marliacea ignea*, *N. odorata gigantea*, *N. odorata rosea*, and *N. tuberosa*, these requiring 2ft depth of water; *Caltha palustris* fl.-pl., shallow water or margin; *Aponogeton distachyon*, 1ft to 2ft depth of water; *Iris pseudo-acorus*, shallow water; *Sagittaria japonica* fl.-pl., 1ft to 2ft depth of water; *Pontederia cordata*, about 1ft depth of water; and *Typha latifolia*, 2ft depth of water.

WHAT REASONS MAY BE ASSIGNED FOR NARCISSI NOT FLOWERING, THOUGH GROWING FREELY, THE PLANTS NOT HAVING BEEN LIFTED FROM THE YEAR BEFORE? (E. E.).—The usual reason is that of the bulbs being overcrowded, arising from their multiplying. In such case the clumps or collections should be lifted when the foliage has died down, say in July or August, the offsets removed, and the larger bulbs planted by themselves and the smaller ones or offsets planted separately. If the ground be poor it should be well enriched, but not excessively, with thoroughly decayed manure, mixing well with the soil, or preferably afford a change of soil and place. Sometimes non-flowering is due to an unfavourable position, such as dense shade of overhanging trees, or even that of buildings, the soil being too dry and poor for the proper perfecting of the growth, and the formation of flower buds in embryo in the bulbs.

VINE LEAVES AND BERRIES FOR EXAMINATION (H. J. P.).—As no letter accompanied the specimens, we can only give the result of the examination, the leaves having a scorched appearance, though there are traces of the Vine leaf spot fungus (*Cercospora viticola*). This forms dry, irregular brown spots on the leaves, and is most abundant during a damp season. The discoloration extends through the leaf, and often causes the foliage to have a browned and scorched appearance. The only preventive and remedy is free ventilation and keeping the growths thin, so that they have full exposure to light and air. This is also the preventive of scorching, a little air being left on constantly at the top of the house, and the ventilation increased early in the morning, certainly by the time the sun acts powerfully upon the house. The berries appear rusted, probably by allowing the temperature to be raised considerably by the sun's heat in the morning, and then admitting air in large amount suddenly. There is no trace of disease as caused by fungus pests; such cases often result from fumes of sulphur, this being on the hot water pipes, and the fumes given off at a high temperature.

FORESTRY (Lewes).—You will doubtless find all the information you require in "Practical Forestry," published by Crosby Lockwood and Son, 7, Stationers' Hall Court, Ludgate Hill, at 3s. 6d.

REED OR WICKER HURDLE (G. D.).—The Dutch bulb growers employ hurdles similar to those here illustrated for the protection of certain plants. These kind of hurdles or protec-



Light reed or wicker hurdle.

tive barriers have also been largely adopted by Messrs. Barr and Sons at their Long Ditton nursery, where they find them most serviceable for providing shade to certain alpine and other hardy dwarf perennials, as well as for giving some necessary shelter against cutting winds. Indeed, so used to these have the growers at Ditton become, that one wonders what they would do without them. The hurdles are simply made of reeds or light willow wands, sometimes also of laths or sparring; and they measure roughly 7ft or 8ft by 4ft or 5ft. It is an easy matter to fix them to uprights, and so to form squares, or three sides of a square, and as many squares as may be desired.

ALSTROMERIA ROOTS NOT GROWING (C. N. H.).—The fleshy, fasciculated roots are quite sound, but their crowns are dried, withered, and dead, which is the cause of their not growing. This is not unusual in the case of divided roots, the crowns being either absent or damaged in the division, consequently there is no resultant growth. It is likely, however, that the crowns have been eaten by slugs or some other pests, though from excessive moisture they sometimes perish, especially in the case of recently divided and planted roots. The best position for Alströmérias is a deep and dry sloping, sheltered border, in a compost of two parts peat and leaf soil, and one loam, with some sharp sand. In dividing, it is necessary to retain a crown to each division, this operation being performed during September or October, or February and March, and must always be done carefully. Indeed, except for purposes of increase, the less the roots are disturbed the better.

DO ANTS DO ANY DAMAGE (Idem).—Ants may have some uses in the soil that are as yet unexplained, but they are certainly injurious to flowers in some cases, though not commonly, and also encourage aphides, both below and above ground, in order that they may "milch" them, or feed on their filthy secretions, known as honeydew. They also do mechanical damage to plants in pots and other receptacles, likewise cause unsightly hills on lawns and paths, and the large black species that live in decayed wood often injure the framing of greenhouses, &c., when the wood is somewhat decayed. Ants are also destructive of fruit, particularly Apricots, Peaches, and Nectarines and Pears. The best remedy outdoors and on soil is to disturb the nest with a fork in the evening and pour on it a solution of Fir-tree or Bitter-oil insecticide. The paraffin oil emulsions diluted with about six times their bulk of water are also effectual, sprinkling over the nests every few days. Indoors the best remedy is poison, the articles called Formica-cide and Ballikinrain Ant Destroyers acting efficaciously; but care must be exercised in their use.

CAUSE OF WITCHES' BROOMS ON BIRCHES (T. P. L.).—The cause of the curious clusters of twigs, looking very much like the nest of a large bird, such as the magpie, at a distance,

are that of a minute fungus named *Exioascus turgidus*. The mycelium of the fungus lives in the tissues of the host-plant, leaves and bark, the twigs being somewhat swollen, and both they and the sickly-looking leaves upon them are duller green than usual, and frequently show a slightly velvety surface. This is due to the "fruits" of the fungus, which can only be detected by a lens of high magnifying power. In the Birch a diseased condition, a good deal like a young Witch knot, is often of frequent occurrence. It is the work of a species of *Phytoptus* or gall mite, and results from the stimulation of the mites in the interior of the buds, which are increasing in size, but never develop properly. The buds in the axils of the leaf scales, instead of remaining undeveloped, enlarge to a conspicuous size, or grow into stunted branches, and on this process being repeated year after year, the mass of buds, &c., may reach the size of a cricket ball, but is usually much smaller. There is no real difficulty in distinguishing these mites (*Phytoptus betuli*) galls from true Witch knots or brooms. The only method likely to be of any use is to cut off and burn Witch knots of all kinds.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (R. T.).—*Cheilanthes hirta*, *Berberis empetrifolia*. (H. N.).—*Megasea cordifolia purpurea*, *Prunus Padus*, *Cassia corymbosa*, *Aubrietia Hendersoni*.

Miscellaneous Notes.

Dermatine Price List.

With this price list comes a "short account (illustrated) of the discovery and manufacture of India-rubber, Gutta-percha, and Dermatine," written by an expert. This is obtainable from the Dermatine Company, Limited, 95, Neate Street, London, S.E. Maps are furnished showing parts of the world where raw rubber is obtained; and from the index to this well-arranged price list, we find that dermatine is employed for belting, air-pump valves, tap-washers, hydraulic rings and pump cups; garden and delivery hose; mats and stair treading; tubing and other purposes. Dermatine was patented in 1884-5, and the manufacturers have sought to improve upon and develop the ideas expressed in the patents, with the result that the material is now put to the many different uses above described. "Unlike rubber, which is so apt to stick when used as a packing, dermatine is practically inadhesive; and another point to which attention may be directed is that there is scarcely any tendency in dermatine goods to blow or produce free sulphur. . . . It can be made of varying degrees of hardness, from that of the most flexible rubber to that of vulcanite or ebonite."

Meteorological Observations at Wisley, Surrey.

Taken in the Royal Horticultural Society's Gardens—height above sea level, 150 feet.

Date.	Temperature of the Air.				Temperature of the Soil. At 9 A.M.	Rain.	Wind.		Sunshine.
	At 9 A.M.		Day.	Night			Direction.	Total velocity for the 24 hours ending 9 a.m.	
1904.	Dry Bulb.	Wet Bulb.	Highest.	Lowest.	At 1-ft. deep.	At 2-ft. deep.	At 4-ft. deep.		
May.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	Ins.	Miles. h. m.
Sun. 1	52	46	62	45	59	50	50	0.14	S.W. 217 9 4
Mon. 2	49	47	53	47	41	52	51	0.15	W. 2.8 —
Tues. 3	52	46	55	39	31	49	50	—	S.W. 176 3 33
Wed. 4	51	45	59	39	29	49	50	—	N. 97 10 49
Thurs 5	54	47	61	46	39	51	50	0.04	S.W. 223 6 39
Fri. 6	50	44	55	41	39	52	51	0.02	W. 217 7 13
Sat. 7	48	44	49	42	34	51	51	0.01	W. 65 0 51
MEANS	51	43	56	43	36	51	50	0.33	— 1 9 5 26

ORCHIDS AT DUSSELDORF.—In the exhibition of orchids held in Düsseldorf (Germany), there was one group of Cattleyas which was valued at £14,000, and fifteen specimens of *Odontoglossum* represented together a value of £25,000.

PROFESSOR MUNSON, of the Maine Agricultural Experiment Station, has completed his studies upon reciprocal crosses in the fertilisation of flowers, and the results will be published in a bulletin in the early summer.



The Destruction of Small Weeds.

"Weeds and their Suppression" is the title of an article by Mr. John Pereival, M.A., in the "Journal of the Board of Agriculture," for March, 1904. As weeds, according to Mr. Pereival, include charlock, thistles, and couch, it is evident that he is undertaking no mean task in showing us how to suppress them. If he will take over a well-infected field of sandy soil, and hand it over to us four years hence in a clean condition, at the same time giving us full details of his experiment, we shall be most pleased to testify to the success of his methods. In speaking or writing of weeds it is most necessary to differentiate between annuals and perennials. The latter, which consist chiefly of the thistle tribe and couch grass, cannot be dealt with lightly, whereas the annual weeds, such as charlock and poppies, may be easily destroyed if attacked at the right moment.

There are many annual weeds which are more or less harmful to grain crops. The common bird's-eye, more generally known as "winter weed," ripens early, and dies away, therefore making little interference with corn crops in the later stages, yet its growth and maturity must have a material effect on the crops amongst which it finds its habitat, robbing them, as it must, of both air and nutriment. We may state without fear of contradiction that no weed other than one of a leguminous nature can be grown without loss of fertility, and the growth of common weeds amongst corn crops must be an economic loss.

Of late years it has been the custom in many counties to vary the four-course system by taking a crop of barley or oats after the wheat stubble. That is all right if the land be in good condition and free from the seed of annual weeds, otherwise it would be better to stick to the four-course system.

Couch grass or twitch is generally considered to be the most noxious of farm pests. It is bad enough in all conscience when it is well established on congenial soil, but when drastically dealt with it can be much more easily got rid of than many other forms of weed.

The common corn thistle is a dreadful pest when thoroughly well established on limestone soils. Its roots burrow into the rocky substratum, and nothing but diligent ploughing and hand-hoeing will keep it under, whilst eradication is well nigh impossible. Another weed most difficult to master is the common foalsfoot. This infests heavy land as well as peaty, low-lying soil. Where its roots are numerous a corn crop has a poor chance of coming to maturity. Hoeing will stop its growth for a while, but it soon reappears. Summer fallowing, which is successful in getting the land thoroughly dried through, is the only system by which foalsfoot can be killed.

Of the annual weeds the poppy and the charlock are the most troublesome. The wild poppy infests all soils which may be called light or dry. Any soil which lends itself readily to the growth of turnips is congenial to the poppy, which loves a fine seedbed. It soon dies out on strong land.

Light soil having once become infested with poppies is very troublesome to manage. The weeds are ever present, for amongst autumn-sown wheat they make their appearance in February, and come up in thousands amongst the spring corn. They are far too numerous to be dealt with by hoeing, for they abound amongst the young corn which is in rows, and nothing but hand-weeding would be effectual.

The only way to deal with poppies is to attack them when they are very small, and the implement to use is a set of light harrows. As soon as the sun begins to make itself felt in

February, the poppy seeds commence to germinate, and a watchful eye should be kept upon their growth. As soon as they appear to be putting forth their second leaves, at the earliest opportunity the light harrows should be used. They will not hurt the wheat, although at the time they may appear to do so, but very few poppies will be left to hamper the growing crop.

On very light soils, where an application of common salt is beneficial to wheat, the harrowing may be made much more effectual by timing it to follow soon after the sowing of the salt. The latter causes the surface of the soil to run together or cake, and a very slight disturbance of this caked surface suffices to break the tap roots of the poppies, and put an end to their capacity for doing further injury. As regards spring corn growing, it is not advisable to sow very early on land which is full of poppy seeds, and clover seeds should never be sown until the corn crop is well above ground. If the clover is sown then, say about the middle of May, and harrowed in with light harrows, which will do no harm to the barley or oats, millions of minute poppy plants which have germinated side by side with the corn will be destroyed. If you do not want another batch to follow after this harrowing do not use a roller, but leave the land as knotty as possible.

The other noxious annual weed is the charlock, which is very bad on many chalky and limestone soils. It is not so destructive as the poppy, but it often interferes very materially with the welfare of spring sown corn. Harrowing at the right time does a little good, but the young charlock has a much deeper root than the poppy. The only way to eradicate it is to pull it out by hand, but a fairly effectual substitute for that system is found in spraying with a solution of copper or iron, which has a burning effect on the young charlock without any deleterious effect on the young corn.

We have mentioned five weed enemies: couch, thistle, foalsfoot, poppies, charlock. Couch extermination is only a matter of work. Thistles may be kept down by deep and thorough ploughing. Foalsfoot needs summer fallow to deal with it properly. Poppies cannot stand harrowing. Charlock is killed by spraying. We have not mentioned the dock. Well, it is not a common weed, and no farmer should have a common acquaintance with it.

Work on the Home Farm.

Having got all our spring corn up and growing and sown our mangolds, we are able to put all the force on to preparation for swedes. As our swede land is, and has been for some time, clean, we are able to dispense with any further dressings, and can proceed to plough and roll down, thus leaving a well broken and fresh mould to work on at drilling time.

Weather conditions have lately been rather dry, sharp winds having been prevalent, and young barley has suffered therefrom. There has been no appreciable frost, but the nights have been cold. A dry May usually means prosperity to the farmer, but before we have any further dry weather we should like a twenty-four hours' rain. We may be charged with always wanting weather to suit us, but to properly work and sow any medium to heavy soil after a frostless winter is a most difficult matter unless rain comes when it is most urgently needed.

We are arguing with regard to turnip sowing, but there may be scores and hundreds of farmers who have not yet finished sowing oats and barley, and who are waiting for rain to break down the land before the drill. Under present conditions, we believe in making good use of the plough. Whether the land be light or heavy we would plough and roll the land immediately afterwards, leaving it firm and in a condition to conserve moisture.

Land which is not too clean, and which is to be sown with late turnips or rape, may be thoroughly fallowed now. Dragging, rolling, harrowing, and rolling and harrowing again, will bring the remnants of twitch to the surface, either to die of drought, or, which is more certain, of a twitch fire. We quite sympathise with agricultural writers who prefer to make the twitch into manure, but after a long experience of the enemy we prefer to burn him. We fear that much spring-sown corn promises little better than the wheat, and we advise our friends to be liberal in top-dressings. The seed-beds were cold, and a little nitrate of soda, say 100lb per acre, should be a good investment, as it will keep the plant moving until it is established.

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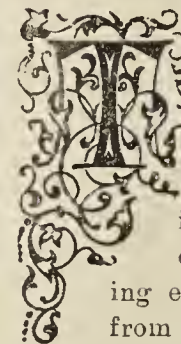
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THURSDAY, MAY 19, 1904.

Horticultural Literature.

TRULY this is a wide subject, for the number of volumes, pamphlets and journals issued relative to gardening is nothing short of remarkable. It would appear impossible at the first glance for compilers and writers to avoid copying each other; nor can they all escape from such a charge. Quite unconsciously does imitation occur in many cases; in others, the most charitable course is to say that there is a remarkable identity of ideas. For the moment there appears to be a lull in the issue of books from the pens of lady writers. Some of these dainty productions are published in connection with the gardens of ladies who have chosen to treat their small corners of land much in the same manner as their boudoir, to be rearranged as the fancy of the moment may suggest. It were quite possible to understand how these charming "Japanilities" may become anathema to the first-class practitioner. The principles underlying some, at least, are utterly inapplicable to the management and economical control of a large establishment. It may be greatly daring, in these days of newspaper gallantry, to doubt if the "charming" and "lovely" style of book has greatly helped onward the cause of horticulture. Still, in whatever form a publication is issued, if its contents tend to diffuse greater interest, even though the style be more or less sweetened, its welcome is assured.

The impetus given to the advance of gardening by latter-day journalism cannot well be estimated. The periodicals are ever ready with descriptions of new processes and new inventions, to say nothing of new diseases and their remedies. Mechanical appliances brought up to date have made it possible for the lavish use of illustrated teaching—this, too, well within the financial reach of all classes. That the public have not been slow to avail themselves of this method of imparting information, there is ample proof.

For most of our contemporaries in the world

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of gardening, we have a high sense of admiration. The excellent work they are doing meets with well-merited appreciation. For ourselves we are content to say little. Our now ancient motto, "For gardeners and gardening," is ever to the forefront, and we endeavour to make these pages as agreeably interesting as human imperfection will allow.

There is apparently an endless supply of standard works and text books, together with revised editions of older publications. The marvel is that there appears room for so many; yet that there is a steady demand is very evident, and this serves to prove how great and widespread is the interest taken in all matters connected with horticulture. The low price at which some of these books are issued might induce a supposition that their contents would be of a corresponding value. Such an estimate is quickly dispelled upon consideration of their pages, with a perusal of the names of the writers or compilers.

Certain societies or associations have their quota to add to this mass of literature. Pamphlets here and pamphlets there; circulars, too, setting forth the diseases and cure of the special subject for the advancement and protection of which they have been formed. Government leaflets, too, from the Board of Agriculture, printed in lucid language, and giving genuinely instructive information. These might with advantage be more widely read and known. Many persons even now are unaware that such leaflets exist, and many more still have not the slightest idea where or how they are to be obtained; though the needful information has been set forth on many occasions in gardening journals.

With all this evidence of strenuous effort and progress before us in connection with the printed work of horticulture, it is at once surprising and regrettable to find the Journal of the Royal Horticultural Society still issued in an uncut state. This work, which, considering its selling price, and also the intrinsic value of its contents, ought to be to the fore in every possible way, is content to lag behind in this respect. A small matter, possibly, but to the busy man a truly exasperating one. Not everyone will find the volumes placed upon his desk, cut and ready for use, as nowadays falls to our lot; but there was a time when this attention was not vouchsafed us, and, looking back through earlier numbers, we find many pages uncut, and no doubt much treasure of information unused. We rather suspect that if a plebiscite of the Fellows could be taken on this question, there would be a very large majority in favour of the guillotine.

In conclusion, it may be said that much could have been added in reference to the publications of other nations, but the subject is sufficiently wide in relation to the work in our own land; far wider, in fact, than can be efficiently treated within the limits of a single article.

Extra Garden Fruits.

There are several fruit products of our gardens or the grounds contiguous thereto, which may be described as occasional occupants therein as distinguished from the ordinary and regular inmates, which one expects to meet with everywhere. A cursory glance at each in order may prove of interest. First, then, let us take the Fig, which is a native of Palestine, as all readers of the Scriptures are likely to know, and largely in evidence in Holy Writ. To sit under one's Fig-tree, indeed, was synonymous, in those days, of peace and prosperity. It flourishes still more or less in that retrograde and bygone historical land, as, too, in various other Eastern countries. I have found it largely about the environs of Constantinople, most gardens, whether large or small, having a Vine or Fig trellised into a summer-house or arbour, the large spreading leaves forming a delightful cool retreat from the midday sun. With us it thrives fairly well in favoured districts, but chiefly in the south and western counties, as warmth is a great desideratum naturally. A corner of a south-west wall will often produce a fine growth and good fruit, while in gardens near the seaside it appears sometimes happy in its condition and fruitfulness.

Coming to the Almond, were it not that I have twice experienced ripe fruit from this highly ornamental spring blossoming tree, it would hardly have struck me as finding a place under the heading of these notes. Born, shall we say, in the East, and also in Africa, it may now be said to abound pretty well over the whole south of Europe, and is a pleasing and familiar object at blossoming time to winter and spring travellers in the south of France, Italy, Corsica, the northern coast of the Mediterranean, and parts of Palestine. Grown as it is with us for its lovely and earliest bloom, when winter has barely died, just as the Cherry, Peach, and Plum is cultivated by the Japanese for spectacular or floral decorations, we have little or no *arrière pensée* for the Almond's autumn fruit. Nevertheless, under favourable conditions fine matured nuts are

sometimes produced. Some few years ago a young tree of mine, bought from the local nursery, acting apparently on the admirable principle, *bis dat qui cito dat*, the very next summer produced about half a dozen perfect nuts, and formed a choice little dish at dessert one winter evening, while a few years later Fortune gave me a solitary almond, equally good, grown from a similar young tree the second season after planting; only in this case it was up in midland Warwickshire where it had perfected, the former being in Somersetshire, and the tree would doubtless have matured several others had they not suddenly disappeared, cleared off, no doubt, by some predatory rook.

The glorious golden Quince has been considered by many to belong to the *Pyrus* family. It is better, however, to treat it as a distinct fruit, obtaining its name from Cydon, in Crete, being indigenous in Persia, and perhaps also in Greece and the Crimea. It was in olden times popularly supposed to ward off the evil eye. Though hardly to be recommended to be eaten *au naturel*, it makes a splendid rich preserve or a delicious adjunct when stewed with its kinsman, the Pear.

The Medlar, that odd fruit which is generally described as rotten before you can eat it (but is it not in reality merely ripe?), like the last-named, is a comparatively rare occupant of our orchards. It is while young a splendid bearer, and the tree, which grows umbrella shape, is elegant and symmetrical in form. It is a native of European woods and Western Asia, and is to be found, though hardly indigenous, in hedgerows in the south of England. It was well known to the ancients, and we have mention of it both by the Greek Theophrastus (*μεσιλη*) and the Roman Pliny.

As to the Mulberry, of which several kinds are closely allied to the Fig, we must go to the other end of the world for some of its varieties, Japan and the South Sea Islands being its ancient abodes, though the *Morus*, or Mulberry proper, is found in temperate regions of Asia and America, and hilly regions of the tropics.

Regarding the Melon and Cucumber as somewhat akin, both may be held as natural products of sub-tropical Asia, though I fancy there is no real knowledge of the former in its wild state. The Water Melons of South Africa and parts of America are much prized for their juicy coolness, while the seeds of an Indian kind are expressed into oil.

Taking the Walnut next, its proper home seems to have been in Persia and the Himalayas. Anyhow, like many other fruits, it was introduced centuries ago into Europe by the Romans, and was cultivated in the time of Tiberius. So valuable at one period was the wood of old trees that as much as £600 has been given for a single tree. As regards their cropping powers, it is prodigious, and once in every three or four years the crop of full-sized trees in their prime is simply colossal. But for the fact that they necessarily take some time before coming into bearing, and accordingly being a case of planting for your heirs, it seems a pity that plantations or single specimens are not more often put in.

Lastly, of the Chestnut, though this, as in a lesser degree the Walnut also, savours perhaps more of the park than the garden. Later even than the last-named in consummating its produce, and requiring the tree to be of a goodly size to bear matured fruit at all, we may devote a few remarks upon this stately arboreal product and its rich brown nut. It came, perhaps, originally from Castanum in Thessaly (whence its name), being an indigenous growth of Asia Minor, but long naturalised in the south of Europe, where it forms an article of food, and is ground, indeed, into bread. Corsica, Spain, France, and Italy are especially renowned for the quantity and quality of this nourishing nut, which Londoners are so familiar with of a winter afternoon in the streets, "done brown," and wonderfully appetising-looking (though we do not often have the courage to buy them) upon the barrows of hawking vendors. In Italian cities this is naturally a still more familiar sight, and many a meal in your hotel or *pension* will be found to include the Castagna or Marron in some form or other. In the south of England many of these showy trees attain a remarkable degree of fruitfulness and size as regards their glossy nut. The grand growths of the Deepdene estate in that sylvan district of Surrey yield some seasons splendid fruit, especially the variety which may be termed the Spanish Chestnut *par excellence*, and many is the liberal bagful the writer when a boy has garnered in under those spreading trees in the beautiful home county.

It is probably very uncommon to find all the above fruits in any one garden of average pretensions. But a month since, however, I was so fortunate as to see every single kind mentioned in these notes doing their respective duty in an old-fashioned rectory garden in Suffolk. There were Melons and Cucumbers luxuriating in frames, single specimens of the Medlar, Quince, Mulberry, and Almond dotted about the fine old lawn, a grand Fig in a very cosy corner between two warm walls, while in the shrubbery skirting the roadway were two superb Walnuts and a promising young Chestnut.—J. A. CARNEGIE-CHEALES.



Saccolabium Bellinum.

S. Bellinum is small compared with most other *Saccolabiums*, though of similar growth, the leaves being arranged in a two-ranked manner, and the flowers are very distinct in form. Their chief peculiarity is in the lip, which at the base is expanded in a strange, cup-like manner. The apex is flattened, and, extending at right angles with the cup, resembles a platform upon which bees or other insects may alight. The surface of this platform is covered with short white filaments, which impart a strange appearance to it when examined. In colour the flower is not very remarkable, though there are some curious contrasts. The sepals and petals are yellow or with a greenish tinge, on which are scattered several circular, dark red spots; the base of the lip is white with crimson dots, and the centre yellow with purple dots. The spikes are small, bearing from three to four flowers each, and though unpretentious in general appearance, it will become a favourite with lovers of many interesting diminutive species of orchids.

The Week's Cultural Notes.

The group of *Cypripediums* known as the *bellatulum* group are not so strong in growth as the majority of the genus, and many growers fail with them. It has been put down to several causes, such as the need of limestone in the soil, but after a fairly lengthened experience with them I am inclined to the opinion that their surroundings have even more to do with success or otherwise than the material in the pots. Some years ago I had a very nice batch, that did remarkably well in the corner of a Melon house, and here they remained. Other plants, grown in what would appear to be more suitable quarters in the orchid house did not thrive nearly as well.

They certainly like a clear light without bright sun actually shining upon the leaves. In their native home many of them are, we are told, subjected to a rather long period of dry rest, but this will not be found advisable under cultivation. Yet it is not wise to run to the other extreme, and keep up an active growing temperature. Any that need repotting should be carefully turned out of their pots and the roots examined. Should they appear healthy there will be no need to shake them out, but if sour and worn-out material has led to decay of the roots, then nothing short of turning right out and washing clear of the compost should be allowed.

In the former case, a larger pot than that used before will be needed, but in the latter it may be necessary to use the same size, or even a smaller one, as it is useless having much of material about the roots or more than they can take hold of. A fair percentage of good, sound, fibrous loam, with most of the earthy particles removed, is a capital addition to the compost, clean, chopped sphagnum, fibrous peat, and roughly-broken crocks or limestone making up the remainder. A moist atmosphere and shady position must be given for the first week or two after repotting, but the foliage must not be wetted much overhead.

The *Phalenopses*, recently attended to at the roots, are not yet making much growth, but the stouter growing *Aërides* and *Vandas* are pushing fairly in the new compost, and can hardly be overwatered, either in the atmosphere or at the roots. On bright days a thorough syringing does them good, especially at closing time in the afternoon, when the blinds may be drawn up and a high temperature result. When dull, the syringing must be left out: it is not needed by the plants, and is often the cause of the loss of the flower spikes in the leaf axils.—H. R. R.

The Kew Museums.

It is not quite sixty years ago—in 1847, to be exact—that the private collections of Sir William Hooker, who presented them to the Royal Gardens, were arranged in the central room of what had till then been a storehouse for fruit, and is now known as No. 2 museum. These (says the "Standard") formed the nucleus of what was the first, and is now by far the most comprehensive, museum of economic botany in existence. Ten years later the No. 1 museum, facing the lake and the Palm house beyond, was built; and in 1863 the old orangery, built in 1761 for the Princess Augusta, was utilised for the collection of timber, and designated No. 3. To the back of this an annexe, 130ft long and 16ft wide, forming a new gallery, has been added, and here the *Gymnospermous* plants are exhibited.

These were formerly arranged in the No. 1 museum, and by their removal a good deal of space has been gained, no less than thirty-two cases being set free. That building now contains only the *Dicotyledons*, and the *Monocotyledons* are shown in No. 2. The arrangement of these museums follows that of Bentham and Hooker's "Genera Plantarum."

In passing through the timber house to the annexe, some of the newer exhibits should be noticed. At one end is a very fine show-case of Indian blackwood (*Dalbergia latifolia*), carved with human and animal figures, and having a stepped pyramidal top, with similar figures on each successive stage. At the opposite end is another case of Indian Cedar (*Cedrus Deodara*), but with the carving geometrical and floral in character. One remarkable exhibit is a section, 7ft high and a little over 22ft in circumference, of the Karri (*Eucalyptus diversicolor*), one of the woods used for paving-blocks. Much more curious, though by no means so imposing, is a section of an Elm, from Elveden,



Saccolabium Bellinum.

showing a strange malformation. Presumably, after the heartwood had perished, the bark split, and the shell contracted, each side continuing to grow, and forming a spiral.

One of the end cases in the gallery is devoted to the *Gnetaceæ*, to which the remarkable *Welwitschia* belongs. In the other is an exhibition of *Cycads*, recent and fossil, among the latter being some specimens of *Mantellia* (which the quarrymen call "petrified birds' nests"), from the Purbeck dirt-beds, and the type-specimen of *Bennettites* from the lower greensand of the Isle of Wight. On one side, in lofty wall cases, the conifers are arranged in tribes, and, with the wood, branches, and cones, is a very good display of many of the industrial products. The collection of resin and turpentines from various species in different countries is well illustrated, the tools being shown in the cases, together with portions of tree stems from which the bark has been stripped in order to allow the crude liquid to flow into metal receptacles, or into a hole or pocket cut in the trunk itself. It is said that the Cluster Pine, from which turpentine is obtained in the Landes, can be bled for two hundred years in succession. From the needles of the Long-leaved Pine of North America a coarse but very durable matting is made, samples of which are shown. Opposite is a small case of fossils, containing petrified Pine-wood from Japan, cones of the Scots Fir, and lignite. One advantage of the new gallery is that the wall space allows of the exhibition of the official maps and plans of the Manor and Palace of Richmond, which are of great interest, as are those of the gardens in various stages of development. With these are shown the photographs of the gardens sent by the authorities to the Paris Exhibition, and of conifers of various kinds, to illustrate their growth in their proper habitat.

British Birds.

(Continued from page 303.)

Herbivorous.

THE RINGDOVE OR CUSHAT (*Columba palumbus*) is very common in England, and during breeding time frequents gardens when nesting near, picking off the leaves and destroying the centres of trees of recently-planted Cauliflower and other Brassica plants. During severe weather in winter it sometimes commits serious damage on greens, and in fields practically stumps Turnip tops, &c. When cereals begin to harden in the ear it falls to feeding upon grain, and takes a goodly share of seed corn. Against these evils must be placed the eating of many weed seeds, such as Wild Mustard (Charlock), and other troublesome weeds.

THE STOCK-DOVE (*Columba oenas*) is far less common than formerly, still in certain districts enormous flocks visit Turnip fields, also market gardening districts, and do much harm to Brassicas. It is also very fond of beechmast. In harvest time it helps to reap grain, and afterwards glean stubbles. All the farmers' and gardeners' benefit is had from its feeding upon weed seeds. Both the Kingdove and Stockdove are resident species.

Migratory.

THE TURTLE-DOVE (*Turtur vulgaris* or *auritus*) arrives in this country during May, and departs at the latter part of September. It does not visit the northerly parts of England, but is not uncommon in the midland counties, often nesting in pleasure ground trees. It lives upon seeds, and the tops of young Turnips or Swedes in fields are to its liking, but it is seldom so numerous as to do material harm.

Carnivorous (Raptors).

Injurious to game and poultry, but otherwise beneficial to farmers, and wholly so to gardeners.

THE HEN HARRIER (*Circus aeruginosus* or *cyaneus*) lives principally about forests and heaths. It feeds upon game (grouse of the moors, partridges of hill and dale, pheasants of the rearing ground, leverets and rabbits, the greatest enemies of cultivated crops in woods, farms, and gardens), birds, especially wild pigeons, reptiles, and the larger insects.

THE SPARROW HAWK (*Accipiter Nisus*) is common throughout Europe, and when taken young is easily tamed. I have had such very questionable aid for the ostensible purpose of frightening birds from fruits in the gardens under my charge half a century ago and since, but found the presence of the Sparrow Hawk an attraction rather than otherwise to small birds, they "laughing" at him. At liberty it is very adroit at capturing and killing small birds, such as larks, sparrows, and finches, and takes young partridges, pheasants, and rabbits; also recently hatched poultry. On the other hand, it destroys young rats, mice, and voles, and is extremely beneficial through its aptitude in killing wood pigeons. It also devours grasshoppers, cockchafer, beetles, &c. An invaluable friend of gardeners, and of great benefit to farmers, for though it will raid the poultry yard, especially in breeding time, it is of great service in keeping down rats, mice, voles, and other vermin.

THE SHORT-EARED OWL (*Otus brachyotus*) is a familiar British form, though migratory, and occurs in many countries, even in India. It sometimes nests in this country, but usually goes abroad for breeding purposes, hence a normal winter migrant, arriving and departing with the woodcock, hence the name "Woodcock Owl." It haunts heath and moorland, marshes, furzy downs, meadows, Turnip fields, and open places, principally in grazing districts, especially in the north of England and Scotland, though found more or less through the whole length and breadth of the British Islands. It flies in the daytime, though mainly at dawn and dusk when its "food" is on the prowl, and hunts for mice, voles, and other vermin, including beetles. Young game, rats, and rabbits do not escape its onslaughts where it breeds, but this is not common in England, and when it does, it is chiefly in districts where there is a full supply of its favourite food—mice, voles, and rats. Extremely valuable to farmers and indirectly to gardeners, its great enemy being gamekeepers, for anything the shape of a hawk or owl falls to their overzeal.

THE LONG-EARED OWL (*Otus vulgaris* or *asiaticus*) is another English species, which appears to reside permanently in Britain, is probably the most ferocious of the common British owls, and feeds upon young game and rabbits, rats, mice, voles, and small birds.

THE TAWNY OR BROWN OWL (*Sturnium Aluco* or *Ula stridula*) is an inhabitant of British woods, and feeds there and on the outskirts, ranging over a wide area, upon rats, mice, voles, and other vermin, and in breeding time may occasionally make onslaught on young game and rabbits, yet is very beneficial to farmers. Other owls, also hawks, are omitted, because too

uncommon, thanks to keepers, who kill stoats and weasels, everything, real or supposed, destructive to game.

THE MAGPIE (*Pica caudata*) is too uncommon to call for more than mention in respect of its food consisting of both animal and vegetable matter; although feeding less upon carrion than the crows. The feeble young and eggs of other birds are attacked and devoured by magpies, which also destroy many ground pests.

THE CARRION CROW (*Corvus corone*) seldom feeds on carrion, because such meals are too scanty for its requirements, therefore it preys upon small quadrupeds, such as young hares and rabbits, young birds, and various kinds of reptiles, especially frogs and lizards, and it also is a frequenter of poultry and pheasant-rearing grounds or runs, attacking the young birds and carrying them off, also of the nests of young birds and poultry, driving its bill through the eggs (?) and carrying them off. It feeds, however, upon mollusca (slugs and snails), and various ground pests. Sometimes it proceeds to the sea, there to feed upon mollusca, crabs, shrimps, &c.

THE HOODED CROW (*Corvus cornix*) feeds principally upon carrion and garbage of all kinds, and in spring on eggs and young birds. On the seashore they feed upon animal matter left by the tide, and upon mussels, cockles, and limpets. In the northern parts of the country the Hooded, Royston, or Grey-backed Crow, destroys the eggs and young of grouse, and in some parts of the Highlands and northern isles robs the ground of seed corn and seed Potatoes. Albeit, they live largely on slugs and other ground pests.—G. ABBEY.

(To be concluded.)

Xanthoceras sorbifolia.

A note in the *Journal* for April 14th sufficiently described this decorative shrub. Messrs. James Veitch and Sons, Ltd., of Chelsea, brought it prominently before the visitors to the Royal Horticultural Society's exhibition on April 5, staging a well-flowered group of plants in pots. The white flowers, with chocolate centre, are borne in racemes just as are shown in our illustration, and much resemble those of *Francoa ramosa*. The pinnate foliage expands after the blossoms have faded. The shrub grows well in a bed in the open grounds at Kew, the soil being sandy. It seems to prefer a light or medium loam. For gentle forcing it is likely to find favour, and may be treated as a pot subject similarly to *Staphyleas*, *Forsythias*, and *Lilacs*. The shrub flowers on the young, well-ripened wood.



Xanthoceras sorbifolia.

The Flower Garden.*

Its Summer Embellishment.

Now that the time has arrived when the beauty of Hyacinths, Tulips, and spring bedding in general has waned, and the task of clearing the flower beds is in contemplation, the gardener looks at the stock of plants he has been busily propagating, and thinks out his best methods for effective arrangement, and how they shall differ from those of the previous season, as frequent repetition or adherence to one plan is apt to become monotonous. The proper hardening off of plants that have been subjected to a greenhouse temperature is a matter of the greatest importance, and must be very carefully and gradually carried out, even perfectly hardy plants that have been raised in heat feeling the check very greatly if prematurely exposed to the cold nights often experienced at the beginning of the summer months.

PREPARATION.

If the weather is favourable in the last week of this month, some of the most hardy plants may be bedded out, but if this can safely be done or not will depend on the climatic conditions and whether the garden is situated in an exposed or sheltered position. Three weeks ago I saw *Lobelia* planted out in London. Needless to say, the foliage has assumed a blueish tint, the result of the cold weather we have lately been experiencing.

So soon as the beds have been cleared, they should be prepared for their summer occupants by being deeply dug and manured, if necessary, although a too liberal use of manure is injudicious where such plants as *Pelargoniums* are to be employed, as it has a tendency towards the production of too rampant growth and very few flowers. Another mistake frequently made by amateurs is in purchasing plants such as *Pelargoniums* (or *Geraniums*, as they are more commonly called), *Marguerites*, and *Fuchsias* in full bloom, and expecting them to last throughout the season. Such plants when offered for sale are generally at the height of their beauty, and fresh growth has to be made before they again begin to bloom, so that part of the season is lost before the energies of the plants are fully renewed. Better by far to purchase plants that are making some growth, and not flowering so freely, unless, of course, immediate effect only is desired. It is almost useless, and at the same time unreasonable, to expect a gardener with insufficient help, space, and convenience, to produce and maintain such displays of flowering plants as are to be seen in many of our first-class parks and public gardens, as the methods often adopted in such places can only be compared to high class examples of furnishing, a sufficient quantity and variety being grown to renew the appearance of the beds from time to time throughout the season. I mention this incidentally, as possibly some gardener who reads this has been told, "Your flower beds are nothing like some we have seen," when what the man has been aiming at after all is something to cut from to supply innumerable bowls, which are kept filled for table and house decoration. Among annuals suitable for the twofold purpose of being useful to cut from and helpful towards making an effective outdoor display in the summer months, the following may be mentioned:—

SUITABLE ANNUALS.

Asters, in their varied tall and dwarf forms, the single types of which are also becoming most popular. These are easily raised from seed sown about the middle or end of March in slight warmth.

Carnations of the *Marguerite* type, which are easily raised from seed, and give a quick return in the wealth of flowers afforded.

Coreopsis (some of which are perennials), which may be sown out of doors in April in places they are intended to occupy; or for earliest work they may be sown under glass and then pricked off.

Centaurea margarita, or Giant White Sweet Sultan, which can be treated likewise. The annual *Chrysanthemums* are effective in masses, and useful to cut from. Single *Dahlias* can be raised from seed, and flower the first season if the weather is favourable for the plants to develop.

Dianthus chinensis, in its double varieties, and also in its single or *Hedewiggi* section, provide some of the most beautiful flowers we have, and are often overlooked. The red and white *Mallows* are utilisable, and Sweet Peas can be grown in clumps in and around the borders of the flower garden. These occupy

* At a meeting of the St. Barnabas, Sutton, and District Horticultural Society, held on the evening of May 10th, when many members and their friends were present, an interesting lecture was given by Mr. F. James, from Messrs. J. Carter and Co.'s well known Holborn seed establishment, the subject chosen being "The Flower Garden; Its Summer Embellishment."

one of the foremost positions for general utility and effectiveness.

Phlox Drummondii may be treated in precisely the same manner as *Asters*. Some gardeners prefer to plant these in twos and threes, as the plants have not quite such a thin and straggling appearance as if planted singly. *Scabious* are useful in mixed borders or for cutting. Of *Stocks*, the annual and ten-week varieties should be sown in spring in boxes or frames, and transplanted to obtain the best results.

Few plants are more generally popular than the *Verbena*, as it makes a first-class bedder, and is brilliant in colours and useful to cut. It requires to be sown in heat in spring, and afterwards pricked off into boxes in cool frames, where it can be properly hardened before planting out. The new and effective variety, *Miss Willmott*, must not be forgotten, being in great demand, and is grown from cuttings.

SOME PERENNIALS.

Then there are perennials, which can be raised from seed, and which increase in strength and floriferousness every year, such as *Aquilegias*, oriental *Poppies*, *Gaillardias*, *Larkspur*, *Phloxes*, *Lychnis*, &c. These are only a few of the more imposing and elegant genera that can be named. Then, besides the stock of plants which have been kept on greenhouse shelves and carefully guarded against frosts throughout the winter, we have effective foliage plants, which are used to enhance the sub-tropical effect of the flower garden, and these should be informally arranged. *Palms*, *Dracenas*, and *Musas* may be plunged in the grass and turfed over as if they had grown there; also large specimens of flowering plants, such as *Agapanthus umbellatus*. These look very pretty treated in this manner, especially if associated with *Liliums* and tall blue and white *Campanulas*, with a suitable background of green foliage.

Should one intend to form a collection of *Liliums*, it must be borne in mind that the conditions under which *Lilies* are found growing in their native habitats differ widely. Some are found in light soils, others in swampy places, although the majority will thrive in a mixed border of herbaceous plants, provided the soil is suitable. The best position, however, is in beds or borders devoted to *Rhododendrons* and other evergreen and deciduous shrubs of low growth, or on the fringe of the shrubbery border. When grown in association with shrubs the advantages are obvious. The tender growths are protected from frosts and easterly winds; the ground is kept cool by the screen of leafage when the growth is being made, and the roots of the shrubs keep the soil moderately dry when the season's growth has been completed. Such species as *Lilium longiflorum*, *candidum*, and *speciosum* succeed best in light soils; while *Lilium auratum*, *Martagon*, and *tigrinum* succeed best in deep loam.

Gladioli can also be appropriately planted in the various bends of the shrubbery border, and will add greatly to the interest and beauty of the garden; while for covering dead tree-trunks *Clematis montana* has few rivals. Planted in turfy loam, enriched with decomposed manure, it is a most vigorous and rapidly growing climber.

CLIMBERS.

Many climbers can be planted now, as they are generally obtainable in pots, and can be placed in the positions they are intended to occupy without unduly disturbing the roots. I remember a rectory garden in Warwickshire, where, in beds surrounded by a broad expanse of turf, *Clematises* of the *Jackmani* type were grown, and trained over large, umbrella-shaped trellis supports. These formed huge masses of colour when in full bloom, and were highly effective.

But, returning to the more tender bedding plants. *Cannas* in a favourable season, and with liberal treatment as regards manuring and watering, are a striking and showy class of plants, and among them the scarlet *Alphonse Bouvier* is one of the best of its class. They are easily propagated by division, and every dormant eye that is potted in sixties, with a portion of root attached, and placed in bottom heat about the end of February or the beginning of March, will make a plant. Then, again, they do not require much room for storage through the winter months, but can be treated in precisely the same manner as *Dahlias*.

DAHLIAS AND CELOSIAS.

Now, with regard to *Cactus Dahlias*. Has anyone ever seen them planted in the turf, neatly staked, and producing their flowers in abundance towards the end of summer? If it is decided to grow them in this manner, they should, of course, be planted with an eye to subsequent height and colour. Holes should be got out in the turf about 2½ ft across and 18 in or 2 ft deep. These should be filled with well enriched, turfy loam, and after they are planted a little grass seed should be scattered round the plants and raked in—that is, if any bare ground is left in view—but this will hardly be possible if the turf is neatly relaid. The following comprise a suitable selection, specially made for their decorative value:—*Amos Perry*, crimson; *Britannia*, pink; *F. A. Wellesley*, rosy scarlet; *J. W. Wil-*

kinson, crimson; Mrs. E. Mawley, yellow; Spitfire, scarlet; Mrs. J. J. Crowe, yellow; Spotless Queen, white; and Uncle Tom, dark maroon.

Last summer I noticed some effective beds of *Celosia plumosa*, and perhaps the following hints regarding the cultivation may prove of service. The seed should be sown in heat about the end of March, and the seedlings potted early, and grown-on freely without a check, and kept clean. They appreciate a rich compost, and should be treated similarly to Cockscombs, as they belong to the same genus. In hardening them off after their final potting into thirty-twos and forty-eights, if they can be afforded the shelter of a frame where the lights can be removed, it will do much towards making them assume the sturdy habit it is so desirable to secure. A wet and cold summer is, however, likely to be disastrous in its effects to these somewhat tender plants.

EFFECTIVE ARRANGEMENTS.

It is useless to attempt to lay down hard and fast rules for the summer decoration of any flower garden. Perhaps there are herbaceous beds and borders, which, if well furnished with a good selection of perennials, do not require many ordinary bedding plants in addition. Roses, too, will also contribute their share in affording a wealth of bloom, for which it would be unwise to attempt to substitute anything more beautiful. A pretty border may be made with an edging of *Viola Bluebell*;

behind this a line of *Dactylis* (ribbon grass). The space between this and the shrubs, which form a suitable background, can be filled with bold clumps of Ivy-leaved *Pelargoniums*, such as *Galilee* and *Souvenir de Chas. Turner*, also *Coreopsis grandiflora*, *Sweet Peas*, and *Marguerites*.

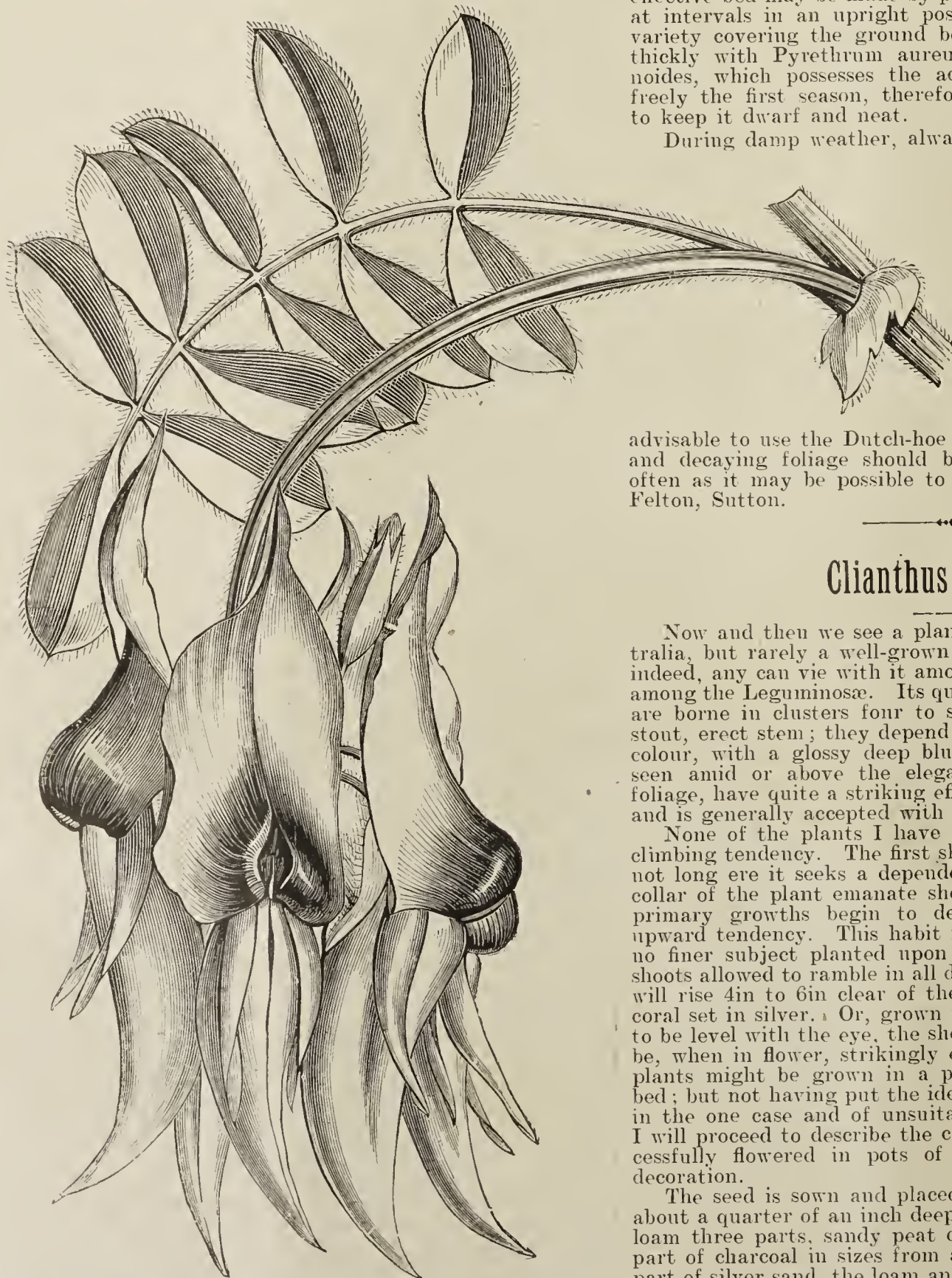
When the *Sweet Peas* have finished blooming, to prolong a display towards the autumn they could be replaced with early flowering *Chrysanthemums*, such as *Madame Desgrange*, *Harvest Home*, *Marie Masse*, and many others which can be named. These, of course, would be planted just as they are coming into flower, and, needless to say, would require almost daily attention as regards watering should the weather be bright and sunny at that time of the year.

For an effective round bed in the centre of a lawn, place a specimen of *Dracæna indivisa* in the centre, plant *Coleus Verschaffelti* rather thickly around it, and edge with *Harry Hieover* or *Crystal Palace Gem Pelargoniums*. The *Coleuses* will require to be kept pinched into shape, and the flowers should be removed from the edging of *Pelargoniums* unless it is preferred to allow them to remain.

Another more fairy-like round bed could be arranged with dot plants of *Grevillea robusta* and *Fuchsia Ballet Girl*, on a groundwork of scarlet *Begonias* and *Mesembryanthemum cordifolium*. This should be edged with *Königa maritima*, interspersed with blue *Lobelia*. Or, if you have the somewhat recently introduced Ivy-leaved *Pelargonium La France*, a novel and effective bed may be made by planting it with this, some staked at intervals in an upright position, other plants of the same variety covering the ground between, and interspersed rather thickly with *Pyrethrum aureum* (*Golden Feather*), or *selaginoides*, which possesses the advantage of not flowering very freely the first season, therefore requiring less pinching back to keep it dwarf and neat.

During damp weather, always use boards when planting, to prevent treading down the edges of the turf around the beds. Do not introduce too much scarlet or purple close to a recently erected red brick house. Too many plants with light flowers or foliage in a shady garden are out of place, and something is needed, like the scarlet *Geraniums* and yellow *Calceolarias*, to give warmer tints. It is also

advisable to use the Dutch-hoe frequently, and all dead blooms and decaying foliage should be removed from the plants as often as it may be possible to do so.—F. SLOW, The Gardens, Felton, Sutton.



Clianthus Dampieri. Flowers crimson.

Clianthus Dampieri.

Now and then we see a plant of this, the *Glory Pea* of Australia, but rarely a well-grown specimen. No finer subject (if, indeed, any can vie with it amongst greenhouse plants) is found amongst the *Leguminosæ*. Its quaint flowers, 3in to 4in in length, are borne in clusters four to seven in number, upon a rather stout, erect stem; they depend gracefully, are of a fiery scarlet colour, with a glossy deep bluish-black centre or boss, which, seen amid or above the elegant light-shining glaucous-green foliage, have quite a striking effect. It is a native of Australia, and is generally accepted with *C. puniceus* as a climber.

None of the plants I have grown of *C. Dampieri* have any climbing tendency. The first shoot, it is true, rises erect, but is not long ere it seeks a dependent habit, and from the neck or collar of the plant emanate shoots about the same time as the primary growths begin to depend, and those have not an upward tendency. This habit is so decided that I can imagine no finer subject planted upon a knoll or raised bed with the shoots allowed to ramble in all directions. The trusses of flowers will rise 4in to 6in clear of the foliage, appearing as jewels of coral set in silver. Or, grown in a large, deep pot, raised so as to be level with the eye, the shoots depending all around, would be, when in flower, strikingly effective. Half a dozen or more plants might be grown in a pot or placed in the centre of a bed; but not having put the idea into practice for want of space in the one case and of unsuitableness of climate in the other, I will proceed to describe the culture by which plants were successfully flowered in pots of moderate size for greenhouse decoration.

The seed is sown and placed in a hotbed, covering the seed about a quarter of an inch deep, the compost consisting of turfy loam three parts, sandy peat one part, leaf soil a part, half a part of charcoal in sizes from a pea to a hazel nut, and half a part of silver sand, the loam and peat broken up rather roughly, the whole well incorporated. No difference is made in the

compost afterwards, only old cowdung supplants the leaf soil at all subsequent pottings, and, in case of the loam not being fibrous, equal parts of it and peat are taken. The seeds are placed two in a 4in pot, or several in a 6in, but the latter is not so good as the former, as the plants have to be potted off, which checks them considerably. So soon as the seedlings appear they are raised on an inverted pot near to the glass, the object being to keep the plants from drawing, especially the stem beneath the first leaves. Water is given sparingly, and always just within the rim of the pot, it being only given when the soil becomes dry. The pots are afterwards placed upon slates, as when stood upon soil the roots speedily find their way into it through the drainage. One crock and a lump of charcoal are employed for drainage. Shade is given the young plants after potting them, but when established they are fully exposed to the sun. Only one plant is grown in a pot, and with a genial atmosphere

within the rim (with the plant rather high in the centre) for watering. The drainage should be thorough—a fourth the depth of the pots. Pot moderately firm, in compost rough rather than fine. Place in a pit or house, light, moderately airy, with plenty of room, having a temperature of 45deg to 50deg at night, 55deg to 60deg by day, or that of an intermediate house, mine being kept in a pit up to the end of September, and then transferred to a greenhouse with a temperature from fire heat of 45deg to 40deg at night, 50deg by day, but that temperature is too low. Notwithstanding, blooming commences in April, and is continued until June. I have transferred plants from 4in to 9in pots successfully, but those who can command a position for planting out in a house with a winter temperature of 50deg would, I feel certain, be amply rewarded by increased size of plant and bloom.

The plants are very impatient of a wet, sodden soil, and



Cestrum aurantiacum. Flowers orange-yellow. (See page 430.)

it will grow freely. In a cold, moist, stagnant atmosphere they will not thrive, and drip upon their branches will destroy them.

When the roots show at the bottom of the pot shift into 7in, keeping well up in the centre, and forming a dish all around just within the rim, using charcoal as before for drainage. If moderately moist when shifted, the soil employed being also moist, do not water after potting, but wait awhile, returning the plants to the frame. Never water until the soil be dry, and yet before the plants show distress, for this plant will not thrive in a parched soil. Red spider will come in due time, destroy it at the outset. Lay the plant on its side, syringe on the under side of the foliage forcibly, turning it round so as to dislodge the enemy from every part. It must be done without deluging the soil with water, making it a quagmire. Repeat the syringing if necessary.

From 7in transfer to 11in pots, leaving space all round just

equally so of a cold, damp atmosphere, but they flourish in a brisk, moist heat if ventilated freely and not shaded. Sown the middle of August in a hotbed in 4in pots, removed to a house with a temperature in winter of 45deg to 50deg, given 7in pots the end of September, 9in or 11in in February, we have plants that flower in June, through the summer, which are the class of plants to be advised for bedding, for, unless the plants are well forward by the early part of June there is little to hope from plants planted out in the open ground in a majority of available situations in Britain.

As to training, let its shoots come out naturally, for it is ill suited for twisting round stakes; but if stakes must be used employ as few as possible, not distorting by seeking to make it climb, which is contrary to its nature. The annexed figure of a spray of this plant will enable those who are not yet acquainted with it to judge of its appearance. Although very old, the plant has not yet been seen by everyone.—G. A.

NOTES

NOTICES

Rhododendrons at Regent's Park.

The Rhododendrons for the exhibition annually held in June in the Royal Botanic Society's Gardens, Regent's Park, have been removed from the nurseries at Bagshot and planted in the gardens. The excessive rainfall of last season, so far from injuring, appears to have stimulated the growth. Bloom-buds are more than usually numerous, and the exhibition is expected to be the best which has taken place in recent years.

Congress of Rosarians.

A conference of French Rose growers will be held at Nancy towards the end of August next. The following are the subjects for discussion:—(1) Classification of Roses; (2) Synonymous Roses; (3) Hybridisation; (4) The best varieties for the East of France; (5) Retarded Roses for winter flowering; (6) The influence of grafting; (7) The best remedies for insect pests; (8) The best means of protecting new varieties for a definite period; (9) Bengal Roses; (10) The best varieties of Bourbon Roses; (11) The best Polyantha Roses; (12) The best Roses distributed in 1898 and two following years; (13) the best Tea-scented varieties for cut uses.

Journal of the Board of Agriculture.

The issue for May has reached us. This publication only costs 4d. monthly (or 6d. by post), from Laughton and Co., Ltd., 1, Essex Street, Strand, W.C., and is well worth the money to agriculturists and commercial horticulturists. The contents of the present number are:—Railway rates for agricultural produce; co-operative poultry societies in Ireland; cost of transport from Denmark to Great Britain; farm labour in the United States; German bounties on agricultural products; manuring of leguminous crops; use of Rye-grass in seed mixtures; flour beetle (*Tribolium confusum*, L.); "Navel-ill," "Joint-ill," or "Big-joint" in Lincolnshire; weekly returns of market prices; Agricultural Organisation Society; prices of agricultural produce; and diseases of animals.

"Paradisi in Sole."

Messrs. Methuen and Co., London, have sent us a copy of John Parkinson's "Paradisi in Sole, Paradisus Terrestris," which they have faithfully reprinted from the edition of 1629. It may be remembered that we reprinted part of the prospectus for this undertaking, in which the publishers stated that they believed there was a demand for a true reproduction of this famous old florists' manual and herbal; and their execution of the task is an achievement which they and the printing world may well be proud of. The peculiar orthography, the expressive diction, the ample pages of unglazed, real paper, and the handsome pica type in which it is printed, all follow the style of the first edition. Only a limited number of copies will be offered, and the price of the one now before us is two guineas net. We shall refer more fully to this work again.

Flora and Sylva.

The May number contains articles and notes as follows: Labours in vain (an able and important article by the editor, pointing out the futility of coddling mere remnants of rare trees and shrubs, whose real beauty and character can never be developed in our climate, no matter what care is given); wall gardens; * the Mexican Orange-flower*; new forms of Juno Irises (coloured plate); the greater trees of the northern forest*; Italian gardens*; Japanese gardens and flower arrangements; a beautiful evergreen covert plant; azures and their effect in the garden (which tries to point out that there are many shades of blue, and each can be used for some special effect); the night-blooming Water Lilies*; the Torch Lilies*; a yellow hybrid Rhododendron (*R. Smithi aurea*, which we have seen in Clibran's nursery, and here represented in a coloured plate); Magnolias in North America; landscape and woodland pictures by the great masters*; and the London parks: their design and planting. The articles with an asterisk (*) are illustrated by wood engravings. The price is 1s. net from 17, Farnival Street, London, E.C.

Appointment.

Mr. G. Giles, for one year and eight months fruit foreman at Mentmore, and previously for four and a half years general foreman at Impney Hall, Droitwich, as gardener to E. Nettlefold, Esq., Harborne Hall, Birmingham.

Mr. Joseph Cheal.

Mr. Joseph Cheal, head of the Crawley firm of nurserymen and landscape gardeners, was in the Drill Hall on Tuesday last looking bronzed and well after a visit to Syria, Egypt, and the Nile Valley, where he has been for five or six weeks. His firm have undertaken some garden construction in Egypt.

The Royal Horticultural Hall.

At our visit to the hall on Tuesday, it was seen to be well advanced. The glass roof of the exhibition area is completed, and only the finishing details are now to be undertaken. The elevation plan as presented to the Fellows in December, 1902, appears to have been somewhat modified, and an entrance porch seems to have been added. The electrical installation and heating of the offices is finished.

Diploma in Agriculture: Success of an Old Kewite.

At the recent examination of the National Agricultural Examination Board, appointed by the Royal Agricultural Society of Scotland and the Highland Agricultural Society of Scotland, Mr. R. C. Gaut, undergraduate Victoria University, and formerly a gardener student at Kew, has been successful in gaining the national diploma in the science and practice of agriculture.

Royal Botanic Society.

We are informed that in connection with the Grand Horticultural exhibition of the above, the committee of the horticultural section have arranged a conference on forestry to be held on Wednesday, June 8, under the presidency of Lord Redesdale. Professor Schlich will give an address on the subject. On Thursday, June 9, Mr. A. Somers Rivers will read a paper on "Fruit Culture."

Trees Recommended for Street Planting.

In a recent bulletin issued by the New England Association of Park Superintendents, Mr. J. A. Pettigrew recommends the following trees for street planting:—Silver Poplar (*P. alba*), White Willow (*Salix alba coerulea*), American Elm, Horse Chestnut, European Linden (*Tilia vulgaris*), Ginkgo (*Ginkgo biloba* or *Salisburia adiantifolia*), Norway Maple (*Acer platanoides*), Red Oak (*Quercus rubra*), Scarlet and Pin Oaks, Cottonwood (*Populus monilifera*), and Soft Maple (*Acer saccharinum*).

Newport (Mon.) Gardeners' Society.

The usual meeting of the above society was held on May 11, when the subject for consideration was to decide upon a place for the annual outing. After various places had been proposed, including a very kind invitation from Messrs. Clibran and Son to visit their nurseries, it was at last unanimously decided to pay a visit to the popular seaside town of Bournemouth during the month of August. Mr. J. Wiggins, who read a paper at the previous meeting on the Herbaceous Calceolaria, staged four beautifully grown and flowered plants of this species, for which he was awarded the society's certificate of merit. Mr. J. Duff presided over a good attendance.—J. P.

Market Gardeners' Compensation Bill.

A Bill to remove certain doubts as to the meaning of the Market Gardeners' Compensation Act, 1895, has been introduced into the House of Commons by Colonel Long, supported by Mr. W. Raymond Greene, Sir Thomas Esmonde, and Mr. Channing. A memorandum attached to the Bill states:—The Market Gardeners' Act of 1895 was founded on the same principle as the Agricultural Holdings Act of 1883, viz., that where land has been let for a recognised purpose, and the tenant has invested capital in the ordinary recognised ways of carrying out that purpose—on the outgoing of the tenant any portion of such capital left unexhausted should be repaid to him, and it was intended that, following the lines of Clause 2 of the Agricultural Holdings Act, 1883, there should be retrospective effect in the case of a holding which had been recognised as a market garden before the passing of the Act. This meaning of the Act was accepted in various cases, and for some time, but on a trial in 1901, before the Court of Final Appeal, the Act was decided not to cover all that was intended when the Act was passed.

Auriculas and Sweet Briars.

Mr. George Gumbrell, gardener at The Lodge, Widbury, Ware, sends us a very fragrant posy of seedling alpine Auriculas and leafy shoots of the Penzance Briars. Both are welcome, and have a fine effect in bowls. Along with these there came a bunch of *Cineraria stellata* very fresh for this time of year.

Cassell's Popular Gardening.

Parts 3 and 4 (price 7d. net each) of this new publication, which will be completed in twenty-four fortnightly parts, are published, and each issue is full of interesting notes, descriptions, hints, and illustrations suitable for beginners and less experienced amateurs. The method of arrangement is novel, and, we hope, satisfactory.

A Tasmanian Orchard.

Perhaps the largest collection of Pears in one orchard in Australasia has been grown at Albert Park, Moonah, in the outskirts of Hobart, Tasmania. There are some 3,000 trees of twenty different varieties. The orchard is now seventeen years old, but this season it has borne its first really good crop. It was described as a wonderful sight to see the branches hanging down to the ground with the weight of fruit, and it was estimated that a measured acre could be taken which would turn off a thousand bushels.

Malmaison Carnations in America.

Though the American Tree Carnations vies with the Rose for general appreciation, and though Roses and Carnations are amongst the plants most largely cultivated in the United States, it shows how very confined the taste is there when we see a query such as this, which we take from an American contemporary:—"Kindly advise me where I could procure some Malmaison Carnations stock in this country.—A. W. S." The editor passes on the query, thus:—"Perhaps some reader knows where this stock can be procured in the United States."

Daily Forecasts of Weather during Harvest, 1904.

During the harvest season the Meteorological Council will, as before, supply forecasts of weather by telegraph to persons desirous of receiving them, upon payment of the cost of the telegrams. The forecasts will be so worded that the cost of each message will be 6d. for any one district, including an address of three words. If the address to which the forecasts are to be sent exceeds three words, an addition of a halfpenny for each additional word must be made to the cost of the daily telegram. The harvest forecasts are prepared at 3.30 p.m. daily from June 1 to September 30 (except Sundays) and are applicable to the 24 hours from midnight following the time of issue.—W. N. SHAW, Secretary, 63, Victoria Street, S.W.

Market Prices of Fruits, Vegetables, &c.

"Send hampers for Gooseberries," was the gist of a telegram to a wholesale firm at Newcastle recently. The telegram came from Cornwall, and meant a great deal more than it said. There has been grand weather in the far South, and fruit and vegetables are full of promise. Gooseberries from Cornwall are at present 2s. per quart, but they will soon be much cheaper. English Tomatoes are 1s. 4d. per pound, Guernseys 1s. 2d., Teneriffes 6d. to 8d. Pineapples are scarce at 3s. 6d. to 4s. 6d. each; Guernsey Melons, 2s. 6d. to 3s. 6d. each; Tasmanian and South Australian Apples, 6d. to 8d. per pound; cooking kinds (American), 3s. 6d. per stone; Murcia Oranges, 1s. to 1s. 3d. per dozen; Valencias (last direct arrival for the season), 6d. to 1s. per doz. New Potatoes are arriving in fairly large quantities. Guernseys are selling at 4½d. to 5d. per pound, and Teneriffes, which are of excellent quality, and are running the Guernseys very closely for the English market, may be had for 3d. per pound. Asparagus (English) is selling at 1s. 6d. to 2s. 6d. per bundle, and French sorts fetch 1s. 6d. to 2s. 6d. per bundle. French Beans, 1s. per pound; Guernsey Peas, 10d.; Jersey Peas, 8d. Seakale is retailed at 1s. 6d. a basket, and Vegetable Marrows at 10d. each. Early Cabbages, of which there is a good supply, are selling at 1½d. to 2½d. each. Flowers are very plentiful, with the exception of the earlier kinds, such as Daffodils, which are getting rather scarce, and making from 2d. to 4d. a bunch. There are, however, enormous quantities of Narcissus (Pheasant's-eye), which may be had at 1d. a bunch. Lily of the Valley is 6d. a bunch; Harriis Lilies, 4d. a bloom; and Arncliffe Lilies 4d. a bloom.

Mr. Peter Barr, V.M.H.

Mr. Peter Barr writes to us from Athens, the capital of Greece, saying he will shortly be back in England again.

Kew Guild Dinner.

We are requested to remind our readers who are old Kewites that the annual dinner will take place at the Holborn Restaurant on the 30th inst., at 7.30 p.m., and that the secretary, Mr. Winn, would be glad to hear before the 23rd from all who intend to be present. The Earl of Onslow, President of the Board of Agriculture, and Sir W. T. Thiselton-Dyer, Director of Kew, will be present.

Russian War Hurts French Growers.

The war between Russia and Japan is being greatly deplored by the florists of Nice, who under ordinary circumstances send enormous quantities of cut flowers to Russia during the winter. The war has completely spoiled this part of their trade this year. Society in St. Petersburg has no thought of flowers now, but is donating all its surplus money to the Czarina's committee, which takes care of the wounded and sick Russian soldiers; and the gardeners around Nice, who last year shipped nearly two million pounds of flowers to St. Petersburg, Moscow, and Warsaw, have lost many million francs in consequence.

Publications Received.

"Botanical Survey of a Pasture," by R. C. Gaut; reprinted from "The Naturalist," April, 1904. "The investigations were carried out during the summer of 1903 in one of the fields of the Manor Farm, Garforth, situate about eight miles south of Leeds." * * "Moniteur d'Horticulture," May 10, containing a coloured plate of *Pæonia lutea*. * * "Gartenflora," April, with coloured plate of Nectarine Lord Napier. * * "The Income-tax Burden," by T. Hallet Fry, F.S.S., London: Horace Cox, Windsor House Buildings, E.C., 1904, price 6d.

Royal Botanic Society's Great Exhibition.

The following particulars are taken from the advanced proof of the schedule:—The exhibition will be held for six days, from June 6 to 11, 1904. Bands will play during the afternoon and evening, and the gardens will be illuminated. Entertainments and side shows will be provided. Conferences and lectures on all subjects connected with gardening and horticulture will be held during the exhibition. Prizes.—Gold, silver-gilt, silver, bronze medals, diplomas, and cash prizes will be awarded. Insurance will be effected on all tents and buildings utilised, but otherwise exhibitors must insure their own goods. Protection in accordance with the Patents, Designs, and Trade Marks Act, 1883, will be obtained from the Board of Trade for persons desirous of exhibiting new inventions. Refreshments.—Dinners, luncheons, teas, &c., will be provided.

Railway stations.—Baker Street, 5 minutes; Great Central, 10 minutes; Great Western, 15 minutes; Euston, 15 minutes; Midland and King's Cross, 15 minutes.

CLASSIFICATION OF EXHIBITION.—Division A.—Horticulture.—(1) Exhibition of plants, flowers, fruit, vegetables, orchids, alpine, forced and retarded plants, &c., and seeds; (2) Market gardening, methods of grading, packing, preparing for market, &c.; (3) apparatus and chemicals for destroying insects and fungoid pests; manures, chemical and natural; etherisation apparatus; retarding and cold storage apparatus; (4) Forestry; growing timber trees, methods of staking, protection, pruning, &c.; (5) Horticultural buildings, heating and hot air apparatus, summerhouses, seats, &c.; (6) Sundries, gardening tools, machines, implements, &c.; (7) New inventions.

Division B.—Botanical.—(1) Experimental research work; (2) Exhibition of scientific apparatus, microscopes, &c.; (3) Plants, seeds, &c., used in medicines.

Division C.—Educational.—Exhibition of methods of teaching; books; Nature study.

Division D.—Colonial.—Exhibition of fruits, vegetables, &c., grown in the Colonies.

Division E.—Art.—Exhibition of pictures of flowers, garden designs, plants, &c.; (2) Table decorations, and decorative uses of flowers.

Division F.—Garden sports.—Exhibition of croquet, lawn tennis, bowls, and other garden games.

For further particulars apply to the secretary, Royal Botanic Society, Regent's Park, London.



Camellias.

Some of the best varieties of Camellias staged by Messrs. Wm. Paul and Son at an exhibition some time ago comprise the following, which they describe:—Marchioness of Exeter, Exquisite, Fimbriata, Mme. Cachet, Conspicua, Madonna, Mathotiana, Duchess of Teck, Princess Marie Amelia d'Orleans, and C. M. Hovey.

Cestrum aurantiacum.

Though the pink-flowered Cestrum (or Habrothamnus) are very generally cultivated in greenhouses and conservatories as pillar or wall plants, the orange-yellow Cestrum is but seldom seen. And why? For it is as robust, as free, and quite as continuous in its flowering as the others are. Given a rich loam and fairly liberal root-space, there need be little fear of non-flowering or imperfect growth. Aphides, of course, are very partial to the Cestrum, but persistent syringings ought to preserve the cleanliness of the foliage.

Preparing Flower Beds for Summer Bedding.

All beds must be thoroughly dug. This will suffice for Geraniums, or any plants that are likely to make too much leaf growth in rich soil. Tuberous Begonias, Stocks, Asters, and other half-hardy annuals will require the addition of some enriching and moisture-holding material. Leaf mould or old hotbed manure forms a suitable dressing, spreading a layer on the surface, and working it in. Some of the spring flowering plants abstract a considerable amount of moisture from the soil, so the preparation of the beds should be carried out several days before required to plant them, in order that very dry soil can be moistened thoroughly.—D.

Apple Blossom.

Those who have been in the country recently must have been struck by the immense amount of blossom the Apple trees are bearing, and now growers are holding their breath, figuratively speaking, fearing that a frost may come and nip the fruit in the bud, for May is a very fickle month. As with Apples, so other fruit gives great promise, and one already hears opinions that there is a good time coming this year. However, as the days go by, and the clerk of the weather, although variable, does not serve up that dangerous combination of a cold snap following rain, anxiety is gradually being allayed, although, of course, anything may happen yet, as unfortunate experiences of past years prove.

H.T. Rose, Killarney.

"American Gardening," for May 7, figures this Rose, and says:—"Killarney has been a much-talked of Rose among the florists. It is a H.T. raised by A. Dickson and Co., the well-known Irish Rose growers, who have given us several fine varieties, and was introduced about five years ago. Very seldom does a Rose receive so many names as has been the case with this one. Our picture is taken from blooms grown by Siebrecht and Son, New Rochelle, N.Y., who hold a very large stock and grow both for cut flowers and for plants—possibly the largest dealer. The delicate pink, deeper on the inside, lights as gloriously, and can be seen at best when the flower is fully expanded. The long form of the bud is very distinct, and makes it useful for decorative work. The Rose will fill a place between Bridesmaid and Bride in colour, and is of a fascinating, lively pink. The parentage is given as Belle Siebrecht and Liberty. As No. 19, Killarney has been sold in New York and Philadelphia for some time past. Robert Craig and B. Dorrance were concerned in the introduction. In Washington, D.C., the name of Mrs. G. Westinghouse was applied to a favourite new Rose, which turns out to be Killarney. It became Winnie Davis somewhere else, and in New England a private gardener thought he had a new thing in Fair Maid. Of all its names Killarney is the prettiest and most appropriate, and as such it will in future be known."

Abutilon Pink Beauty.

This new Abutilon has been highly recommended for growing into pot specimens for Easter sales. The variety was imported from England some years ago (says an American paper) by the proprietor of a private place in Massachusetts, where it was noticed by C. B. Knickman, manager of the Ozone Park Nurseries, Ozone Park, N.Y. Mr. Knickman at once saw its merits, and has since made a specialty of it. It is a very compact grower and profuse bloomer. The flower is large and the colour a soft shell pink. The plant is alike useful for pots and bedding.

Aster Kate Lock.

A recent issue of the "Florists' Exchange," New York, gives an illustration of a vase of blooms of this new white Aster—and the portrait of the originator, John H. Lock, Toronto, Ont. Mr. Lock says the new-comer "originated from the Washington and branching Asters. It grows from 38in to 41in in height, each plant producing about fifteen large flowers, on stiff stems. On account of the rigidity of the stems, the blooms can be easily and artistically arranged. The flower resembles that of the Truffaut in form, and the plants are very robust."

Fritillaria Meleagris.

Though the beautiful blossoms of this species are now fading away for another year, it is still seasonable to remark upon their merits for the spring garden. Quaint in form and of lovely colour, they come without any real special care in culture, and present an unsurpassedly beautiful effect when seen peering up among the shafts of long green grass when naturalised in sward. The drooping, chequered flowers are always graceful. A number of distinct varieties in a bed make a pretty show, some being pink, others white, and a few of darker colours. This Fritillary enjoys a cool, moist soil, and where the land is naturally hot and dry it is advisable to prepare a medium to meet their needs. We would recommend that a trial of the Snake's-head Lily in grass be made.

Croton Sinitzianus.

Crotons (or Codiaums) represent a genus of plants whose culture is, as a rule, more carefully undertaken than that of nearly any other tropical subject. Very many gardens possess a special Croton house, and the "stove" in the generality of private places contains a goodly selection of these richly-coloured, ornamental-leaved subjects. They enjoy a somewhat heavy loam and firm potting, with as much summer sunshine as possible, provided the atmosphere of the house is kept well charged with moisture. The plants must be closely watched against the attacks of mealy-bug, and a vigorous, persistent use of the syringe (sometimes using an insecticide) will maintain clean plants. For exhibition purposes it is necessary to harden off the plants by a gradual lowering of the temperature of the house, and allowing some amount of exposure from about a fortnight before the date of the show. Shapeliness and brilliancy of colour is aimed at by growers. C. Sinitzianus with green and yellow leaves may not be known to some of our readers.

Strawberries in Pots.

The latest plants will now be commencing to swell the fruit, and as the stems are usually long, the berries should be supported clear of the pots with forked sticks, pointed at the stem end and pushed into the soil, the stem of the truss resting in the fork or a little below the fruit. Then, the flowers and the fruit. The centre fruit is always the largest, and to encourage these and others of the most promising, early thinning should be practised. Grand fruits are obtained by this process in the case of such varieties as Royal Sovereign, President, Sir Joseph Paxton, Auguste Nicaise, James Veitch, and British Queen or Dr. Hogg. The plants should have frequent supplies of liquid manure for swelling their fruit, giving it from the time the fruit commences to swell freely until it changes colour for ripening, when clear water, and not too much of it (only the plants must not flag), will be more suitable. When ripening, the atmosphere must be kept rather drier and cooler than when the fruit is swelling, and it will then be less liable to spotting, the flavour will be higher, and the aroma, not an insignificant matter, more pronounced.—G. A.



Fritillaria Meleagris varieties.



The Proposed Gardeners' Society.

I think the suggestion of Mr. Close in your last issue an excellent one, and I hope he may get many answers. I thoroughly agree with him, too, with regard to the Provisional Committee, and think a society on the lines suggested will not be of much use. As to the questions which may be taken up by the society, mention is made of the assistance of sick and aged gardeners and gardeners' orphans. We have already three excellent societies for that purpose, viz., The Gardeners' Royal Benevolent Institution, The United Horticultural Benefit and Provident Society, and The Royal Gardeners' Orphan Fund. I venture to say in this respect that gardeners would help themselves more by subscribing to these. I hope the meeting will be largely attended and thoroughly representative on June 1, and the whole thing well threshed out.—H. P., Virginia Water.

Fruit Prospects in South of Ireland.

Very remarkable meteorological prophecy that of Mr. B. G. Jenkins, F.R.I.S., author of the well-known weather chart, that (improbable as it might seem) we should have snow on May 8. Well, we had a shower of snow here for a few minutes last Sunday morning, and the aspect of the weather was not reassuring for those having the great majority of their fruit trees in full blossom. This very same week last year the holocaust of our fruit hopes took place. Fortunately, towards evening of that day, the wind veered round west, and by a narrow shave a very promising fruit crop seems saved. There is a profusion of Apple blossom. I cannot remember for some years seeing such a prospect, owing to imperfect ripening of the wood last year probably. Pears in many cases do not promise such a heavy crop, though in the cases in my garden where I had thick meshed netting over the choicer varieties, the set of fruit is very promising. Of course I am aware, under unfavourable conditions, some of this may yet fall. The same is true of Plums and Cherries, but the few trees I have protected on walls of Apricots, Peaches, Nectarines, and Figs, promise well.—W. J. MURPHY, Clonmel.

Fruit Prospects in Warwickshire.

The slight frosts experienced at intervals during the last few weeks seem to have done no harm whatever to fruit trees in blossom; and although it is yet too early to speak definitely about fruit generally, with some kinds a splendid crop seems to be assured. Plums have set very freely, but rain is badly wanted to enable the young fruits to swell, and unless it comes soon many of the fruits will inevitably drop. This, however, should not be altogether a disadvantage, for many trees would be far too heavily cropped if left as they are at present. Green aphids has already put in an appearance, and copious rains would be of immense advantage in keeping them in check and invigorating the trees. If dry weather continues, these troublesome pests will undoubtedly do much harm to the trees, unless they are sprayed or syringed with insecticides, as, of course, they should be, but too often are not.

Gooseberries and Red Currants promise to be a splendid crop, as the majority of varieties are cropping freely. Black Currants are flowering abundantly, and look most promising. In some districts bad attacks of the mite may be seen; in others the bushes are quite free from the pest. There is an excellent opportunity for a great increase of area under this crop in the county.

Strawberries are flowering splendidly, and the plants look particularly well. Pears are just now casting numbers of their imperfectly fertilised fruits, but there is every appearance that quite enough will be left to form a good crop. The blossom has been most abundant. Apples are in full and glorious blossom; but what the crop will be is at present uncertain. I have already found a few grubs of the sawfly in unopened blossoms. Cherries are but little grown in the county. The few isolated trees I have met with appear to have set well, and Morellos on walls have yet scarcely shed their petals. Peaches and Apricots will be a good average crop. After two "lean" years in regard to fruit, there is in present prospects much to be thankful for, and I hope a little later on the general verdict will be that our gardens and orchards are once more proving their marvellous capacity for fruit production, and that throughout the land there will be no lack of the "fruits of the earth" in due season.—H. D.

Thunderstorm at Tyntesfield.

We have to-day (Tuesday) experienced a most severe, though short, thunderstorm. At midday it broke upon us with scarcely a cloud to be seen. The lightning was so vivid and sharp that we could distinctly feel the vibration as it passed through the air. Our men in the garden say that they never experienced such a storm before. My own definition of the lightning was like a loud cracking of whips, or similar to pouring fat in a fire, and, strange to say, we had no rain. I regret to say that it destroyed two fine Cedar trees in the grounds here. The thermometer now (8 p.m.) stands at 70deg outside.—T. WILKINSON, gardener to A. Gibbs, Esq.

Hydrocyanic Acid Gas.

I notice in your issue of May 5 you publish an account of a series of experiments carried out by Mr. G. F. Strawson in conjunction with Mr. E. F. Hawes and myself at the gardens of the Royal Botanic Society, Regent's Park; experiments which had for their object the putting on a sure basis (English) the destruction of insect pests by the application of hydrocyanic acid gas. It is not my purpose now to argue as to the enormous advantages that the process has over any other method of destruction for such pests as mealy bug and scale, as by the experiments themselves that question has been settled once for all to our entire satisfaction. What I wish to do in writing you is to caution your readers against the indiscriminate application of this deadly gas. I personally do not recommend its general use in private establishments. The usual insecticides must continue to be used in those places, because expense is not so much a consideration as in commercial establishments, in which I am principally interested, and where it is necessary that every economy should be practised in face of the keen competition of the present times.

In cases where it is necessary to use this gas to clear Vines, Stephanotis, &c., of mealy bug or scale, the work should be done by one who is thoroughly versed in the application of the gas, and who knows fully its deadly character. Hydrocyanic acid gas is a deadly poison, and if a human being were subjected to its vapour, the result would be the general collapse of every muscle and nerve, and finally death. Cyaniding as applied at the gardens of the Royal Botanic Society is an immense boon to gardeners, both private and commercial, but there must be absolute care exercised in its use, and the application of the gas must on no account be lightly undertaken by the novice.—W. F. EMPTAGE.

British Forestry.

I shall feel much obliged if you will allow me to ask through your columns for the assistance of landowners, land agents, and foresters, and all others interested in woodlands, with regard to details concerning the available dimensions of individual trees, and the yield in timber per acre of tree crops.

For individual trees the details desired are:—

1. Total height of tree.
2. Height of stem up to first branch, and approximate length of bole.
3. Girth at breast height (4ft) or at any other height specially mentioned if breast height cannot fairly be taken.

For timber crops the information desired is:—

1. Total quantity of timber (of each kind of tree) per acre in square of quarter girth cubic contents, and stating if the timber is measured down to 6in or 3in diameter and also if top and tip not reckoned as timber.
2. Age of crop.
3. Number of stems per acre forming final crop.
4. Average height and girth (at breast height) of the trees forming the final crop.
5. Soil and situation on which crop has been grown.
6. Any information which the owner may permit to be given as to the gross and net price received for the whole crop of wood.

My object in asking for the above assistance is to try and obtain data (not otherwise available) regarding the growth of trees and timber crops in Great Britain and Ireland, so that in the new edition of "The Forester," now in course of preparation, some endeavour may be made to tabulate the results of timber growing here for comparison with the yield tables showing the returns in continental forests. I would invite the co-operation of the members of the Royal Scottish Arboricultural Society, the English Arboricultural Society, and the Irish Forestry Society, in order that the new edition may all the better answer the requirements now felt for a practical textbook and comprehensive work reference on British Forestry, and not merely (or mainly) a compilation from German works applying to economic conditions and woodlands entirely different from those in the United Kingdom.—I am, &c.,

JOHN NISBET.

c/o Wm. Blackwood and Sons, publishers, Edinburgh.

Tyntesfield, near Bristol.

FOR many years the residence of Antony Gibb, Esq., Tyntesfield, has had a far-reaching fame horticulturally speaking. The soil, situation, and the unstinting patronage of its owner aid this to a remarkable degree. The rich, red soil has a tone of the utmost luxuriance about it, and this is exemplified in the health and vigour of tree and crop of every kind. The position of the house and grounds command an extensive range of hill and valley, stretching towards Weston-super-Mare and Clevedon, and the home park being so beautifully undulating and well-timbered enriches the landscape with the wealth of varied tree life. The lawns and grounds extend to upwards of thirty acres, and are full from end to end of interesting trees and shrubs in perfect keeping. What lends so much interest is the fact of so many of the shrubs and trees being named, and kinds, so many of them strictly out of the common.

Tyntesfield House cannot claim an age measured by centuries, and this being so, the age and development of trees are not of that maturity and size seen in some other gardens; yet, while this is true in fact, there are notable specimens of some trees, whose progress has been fostered by the splendid soil and perfect shelter abundantly provided by the sloping nature of the situation. Cedars are numerous, the majority of them being brought home by ancestral relatives direct from the Lebanon regions.

STATELY CONIFERS.

Some of these date back less than sixty years, yet they are fine trees, making rapid headway. Wellingtonias, too, grow well, one tree in particular measuring some 80ft to 90ft high. One of the finest *Araucaria imbricata* we have ever seen is here, its branches sweeping the grass in perfect symmetry, and its girth of stem remarkable. Seed cones form freely, but I did not learn that any had been reproduced. Some *Cryptomeria elegans* are very stately, so also are *Picea lasiocarpa* and *Cupressus macrocarpa*. *Cupressus Lawsoniana pendula* is striking in its graceful bearing, and being planted in a tree-formed recess on grass, its drooping character is made the more conspicuous. The variegated *Cupressus L. var. alba* is not everywhere an attractive tree, the variegation being so dull, and the growth of the tree poor. This cannot be said of the Tyntesfield specimens. *Abies Parryana glauca* and *A. Alcoquiana* will develop into handsome proportions, judging by their present rate of progress.

Rhododendrons grow into immense bushes quite 12ft high, and at the time of my visit in April, some were quite gay with crimson blossom, while others promised a rich display later in the season. These are planted some in large circular groups, others as single specimens. Peat beds seem to have been formed for their reception. To name even a tithe of the numbers of flowering shrubs that are grouped about the lawns would need much space, yet annually there are additions made both in variety and number.

The Rose garden must be a wonderful sight with its iron pergolas of Crimson Ramblers and other climbing kinds. Large beds are filled with dwarf H.P.'s and Teas in large numbers. An extensive rockery has recently been overhauled, and many additions made, Japanese Maples occupying the higher elevations behind will give of their delicate tints most effectively.

THE FRUIT HOUSES.

The glass structures, which are numerous and extensive, are of substantial construction, and modern in design. A handsome range of patent iron dry-glazed vineries are some 180ft in length in three divisions. Mr. Wilkinson has a long-standing reputation as a Grape grower, and though his charge at Tyntesfield extends back but a few years, there has been a marked change in the health and productiveness of the Vines. Those in two divisions have been lifted, the borders reconstructed with new turf, and the success of the undertaking now may be seen in the heavy crops and luxuriant leafage at the present time. The central division has been entirely replanted with new Vines, mostly Muscat of Alexandria, and these, like the older ones, demonstrate clearly that their soil and attendance are of the best.

Peaches, like Grapes, are extensively grown in succession, the earliest being accommodated in a lean-to range continuing from the vineries already mentioned, while a patent gear-roofed structure, which opens in sections so as to expose the trees to open air, provides the latest fruits. Among these Apricots and Figs are planted, and all appeared to thrive remarkably well. A former gardener in his effort to introduce originality of training, adopted an espalier style, but the fallacy of such a course is now plainly visible in the bare stem and barren spaces continuing up the main stems. This will in time be modified by replanting new trees. It is unfortunate that almost the whole of the extensive glass-grown stock of trees have been thus spoilt. Slate shelves overhead afford excellent accommodation for Strawberries, of which 800 are grown in pots. Royal Sovereign

is the favourite for this purpose, and the crop produced in 5in and 6in pots were the best we have seen this year.

Melons and Cucumbers have another iron hip-roofed range, admirably adapted to forcing these crops. Fine fruits were developing in April of Royal Jubilee, Carter's Invicta, Bath and Wells—a seedling raised at the Bishop's Palace gardens some years ago—Cotswold Hero, Little Heath, and Western Hero. The soil of Tyntesfield seems eminently suited to Melons, as Mr. Wilkinson finds the colour and size of the fruits to be most satisfactory, as well as flavour.

THE PLANT RANGES.

The fruit and plant ranges are separate. A handsome and costly architectural building forms the entrance to the latter, and this is devoted to Oranges and other large trees in tubs and pots. This opens into a large fernery, on the roof of which grows *Bougainvillea glabra* in luxuriant festoons. In adjoining structures are grown large batches of decorative plants that find uses in the conservatory and house. The Bridal Wreath (*Francoa ramosa*) and *Humea elegans* were in fine form, the latter in particular were most vigorous and numerous. *Nerine Fothergilli* major had been fine. *Gloxinias*, *Begonias*, and *Pelargoniums* are other subjects in large demand.

In one of the stoves an *Allamanda* seemed most luxuriant, and in summer it is said completely covers the roof with its golden fountain-like sprays. *Adiantum Farleyense* and *Pan-cratiums* do remarkably well, and are grown in large quantities. In one of the stoves *Crotons* made a bright show, as also did *Begonia carminata rosea*. Violets in frames are largely and most successfully cultivated, especially the long-stemmed *Princess of Wales*.

The conservatory adjoins the house, and is a large and costly structure, some 90ft in length, 50ft broad, with a central dome of probably 60ft, altogether an imposing erection in iron. Tree ferns, Palms, and other large plants in boxes and pots occupy the floor space with overhead and pillar climbers which cover a deal of space in festoons. *Goniophlebiums* in large baskets are very handsome, and the walls have a cool-looking repose in fern and *Begonia*. This and the main front of the mansion overlooks the terrace garden, which, at the time of my visit, was extremely gay with Tulips, Wallflowers, and other spring blossom in large, handsome beds. The low terrace walls afford shelter and accommodation for choice flowering shrubs not sufficiently hardy in the open ground, and in their season lend an aspect of much interest and variety.

THE KITCHEN GARDEN.

The kitchen gardens are not of the acreage proportionate to the grounds, but their high state of fertility and productiveness give crops above the average. The walls are studded with eyelets diagonally for training the fruit trees, a system we had not seen before adapted to tree growth, and we are not sure that it will supersede strained wires, which has answered the purpose so well for so many years. Mr. Wilkinson would have preferred the older style. All kinds of hardy fruits are grown, and, with the exception of Cherries, have done well. Young, vigorous specimen trained and bush trees are replacing older, worn out veterans, while there is a supplementing of the stock by bringing into use new sites and stations. There were good prospects of fruits of all kinds, and Strawberries in particular appeared most vigorous and productive. We noticed quantities of boxes filled with vigorous Onion stocks awaiting replanting in the open, a course favoured above that of sowing in the ordinary way.

Long rows of Peas did not reveal the presence of so severe a slug plague as that which has become quite familiar in many gardens this spring. Special beds were in preparation for Vegetable Marrows, which, with frame protection, ensures an early summer supply much in advance of that obtained from ordinary cultivation. Gentle bottom heat is a great factor in getting early Marrows.

Everywhere there was the repose of natural dignity apparent, and one could not fail to find that the interest of the owner was manifested in the smallest item of detail, and the love of gardening is concentrated on no one particular subject. In its every phase there appears a patronage as varied as anyone could desire. The whole tenure of the extensive estate implied the best of relations between owner and servant; half measures are outside the scope of Tyntesfield, whole-hearted thoroughness appears a much greater force, and wealth of satisfaction to all concerned. Perfect Holly hedges form the roadside boundary through which one passes from the station to this noble mansion—hedges that give credit to those responsible for their maintenance, as well as their appreciative owner.—VISITOR.

From "The Globe."—"1828.—GREEN PEAS.—This morning, in Covent Garden Market, Green Peas were exposed for sale, for which the price of three guineas per quart was asked! There was also a show of Cherries and Strawberries, but the prices were equally high."



Thinning Grapes.

The timely remarks from the pen of "Onwards," on page 404, are worthy the attention of all; but more especially are they to be commended to the consideration of the dwellers in the *Journal* "Domain." Young men, some little more than lads, have of necessity to be pressed into this work. To some no doubt it is a tedious task. The man who will, however, give some thought as to the ultimate finish of each bunch taken in hand, when the different shapes and sizes of bunches and berries shall have each attained their proper form and dimension, will find the work as interesting as any operation in gardening. It is sometimes necessary to keep a sharp eye on youths; twisting and wrenching the bunches so that access may be gained in the easiest possible manner, will on occasion spoil fine clusters. One would have thought that thinning Grapes would have proved congenial work for women, yet I know at least one large grower for market who has found their services in this connection anything but satisfactory. He emphatically declares that not one woman would find employment in his vineries at thinning time if only a sufficient number of men were forthcoming. As is well known, many an otherwise "out of work," who can deftly handle a pair of scissors, may find a few weeks' employment at this busy season.—GROWER.

The Strawberry Supply.

In your issue of the *Journal of Horticulture*, on page 404, May 12, 1904, under heading, "Some Sources of the Strawberry Supply," the statement is made that "English growers do not pay as much attention to the wants of individual plants as the French cultivators do." Then a little lower, "If our growers paid anything like the attention to their crops that the Paris Strawberry raisers do to theirs the average output of the fields of Britain would soon be doubled." The latter part of this statement is both interesting and very important. May I ask two or three questions?—1st, Please explain what is meant by attention to the individual plants; is it meant that at a certain period of growth each individual plant or stool should be fed in the same way as Cauliflowers often are in Britain? 2nd, Can you explain what attention we can give which will double our crop? 3rd, Can you explain the manures used, and the methods of culture applied, by which we can secure such results? An answer to the above would greatly oblige.—H. A., Nottingham.

[As our correspondent would notice, the article was quoted from the "Newcastle Chronicle," but we publish the queries in the hope that some reader may be able and willing to oblige. The note which follows may supply some useful hints.—Ed.]

Strawberry Culture in France.

In France the Strawberry growers depend chiefly upon such varieties as the *Princesse Royale* (conical), *Vicomtesse Hericart de Thury* (conical, or heart shaped), *Marguerite* (elongated conical), *Docteur Morel* (short and wide), *Docteur Nicaise* (cockscorn shaped), *Jucunda* (heart shaped), and *Gloire de Zindwyck* (conical). The *Docteur Morel* is large and a tremendous cropper, so is *Docteur Nicaise*, many of the fruits of the latter weigh from one to one and a half ounces each. Perhaps the *Princesse Royale* is more largely grown than any other kind. It always makes the best prices in the Central Market at Paris, and is raised in nearly all the commercial Strawberry grounds in France.

The success of the French Strawberry growers is due to the following:—(1) The use of a firm soil; they are wise enough to know that the soil in which the roots rest cannot be made too firm, this sends the plants to fruit; (2) twice a week shallow surface stirrings from the first day the ground is workable in the spring until the mulch is put on; (3) ample moisture from the time the young fruits set until they begin to change colour; (4) Mulching in the winter after the first frost; and (5) the use of pedigree or properly propagated plants. If Strawberry growing were carried out on skilled lines in this country, the English county grower could do much better than the French gardener, because the English berry is of far superior quality to the foreign fruit.

Societies.

Royal Horticultural, Drill Hall, May 17th.

In a large sense the exhibition on Tuesday was a Tulip show, apart, of course, from the few competitive classes arranged by the National Tulip Society's annual exhibition, which came in conjunction. The nurserymen staged groups of Darwin Tulips in all parts of the hall, and the display was indeed rich and varied. But the lovers of hardy flowers were delighted, perhaps, with Mr. C. G. Van Tubergen's hybrid *Regalio-cyclis* Irises (or *Onco-Regalia*) more than with anything else, and they were perfections of grace, rarity and beauty. We would draw special attention to the eight certificated varieties described at the end of our report. Orchids and alpine plants, together with Roses, ferns, and stove plants, were each well represented. A lecture was delivered at 3 o'clock by Mr. R. Hedger Wallace on "School Gardens."

Fruit Committee.

Mr. Leopold de Rothschild (gardener, Geo. Reynolds), Gunnersbury Park, Acton, obtained a cultural commendation for a dish of Peach, Duke of York.

Mr. John Hodges, Rusper Vineries, Fay Gate Station, contributed a collection of marketable Grapes (*Black Hamburgs*) in market baskets. (Silver Banksian medal).

Rhubarb, *Holday's Giant*, from Mr. G. Holday, Havering Road, Romford, had stalks fully 4ft. long.

Orchid Committee.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, staged *Dendrobium Bensoniae xanthinum*, *D. Parishii*, *Laelia purpurata* *Baronsholt* variety, a very pretty form; *Cattleya Skinneri*, which was excellently flowered; also *C. intermedia*, *C. Mossiae* *Reineckiana*, a gem; *Lycaste aromatica*, *Oncidium cucullatum*, and *O. phymatophilum*. (Silver Banksian medal).

Mr. H. S. Goodson (gardener, Geo. E. Day), Fairlawn, West Hill, Putney, staged a bright group of well-flowered orchids, including *Dendrobium Jamesianum*, *D. thyrsiflorum*, *Cattleya Mossiae*, *Cymbidium Lowianum*, *Dendrobium Devonianum*, *Cypripedium eximium*, and some hybrid *Phaius*. (Silver Flora medal).

Messrs. James Veitch and Sons, Ltd., Chelsea, were represented by *Dendrobium Jamesianum*, *Masdevallia ignea* (splendid pieces in pans), *Oncidium Marshallianum*, *Laelio-cattleya Highburiensis*, *Laelia purpurata Russelliana*, *Cymbidium Lowianum*, *Oncidium leuochilum*, *Laelio-cattleya Wellsiana* (a very beautiful orchid), *Oncidium sarcodes*, *Laelia Latona*, and *L.-c. x Ascania*. (Silver Flora medal).

Mr. de Barri Crawshay (gardener, W. J. Stables), Rosefield, Sevenoaks, sent *Odontoglossum crispum* *Crawshayanum*, *O.-c. Angel* (a gem, and very beautiful); *O.-c. Raymond Crawshay*, with eleven flowers, and *O.-c. Theodora* (A.M.).

Odontoglossum crispum *Raymond Crawshay* and *O.-c. Grairianum* each excellent; also *O.-c. Harold* (which received a F.C.C.) were staged by Mr. Norman C. Cookson (gardener, H. J. Chapman), Oakwood, Wylam-on-Tyne.

Floral Committee.

Messrs. J. Laing and Sons, Forest Hill, arranged a semi-circular group on the floor, consisting chiefly of stove and greenhouse plants. The flowering section was represented by *Anthuriums* in variety, and *Clerodendron Balfouri*. In the foliage section the *Crotons*, *Dracenas*, and *Aralias* were most conspicuous. The firm also exhibited a nice strain of *Streptocarpus* hybrids.

From Messrs. Paul and Son, Cheshunt, came a varied display of Roses, Azaleas, Tulips, and rock plants. The Roses were *Tea Rambler*, a glorious plant, and *Snowstorm*. *Azalea mollis* *Fire King* was conspicuous for its bright colour. The single white *Paeonia Emodi* was also noted. The rock plants were arranged naturally, and were well displayed.

A nice table of herbaceous *Calceolarias* and *Gloxinias* came from J. A. Young, Esq. (gardener, Mr. J. H. Street), Stone House, Putney, all of which exhibited robust health and excellent strains.

Mr. John R. Box, West Wickham, had a nice table of double *Begonias* in pots, the chief varieties being *Mrs. J. R. Box*, a fine white; *Miss Woodhead*, *Lord Milner*, *Sunrise*, and *Samuel Pope*.

Messrs. W. Bull and Sons, Chelsea, were represented by a collection of table plants, which consisted of decorative subjects, such as *Aralia Veitchii gracillima*, *A. leptophylla*, *A. elegantissima*, and *Chabrieri*. Palms in variety, *Dracenas* *His Majesty*, *Mayi*, *Lord Wolseley*, and *Exquisite*; also several other plants useful for decorative purposes.

The Guildford Hardy Plant Nursery contributed a nice display of hardy plants naturally arranged, backed with flowering shrubs. The exhibit was tastefully arranged. A few of the most prominent features were *Primula japonica splendens*, *Gentiana acaulis*, *Haberlea rhodopensis*, *Androsace sarmen-tosa*, *Linaria anticaria*, and *Anemone sylvestris major*.

Messrs. T. S. Ware, Ltd., Feltham, contributed a large display of Roses in pots, also in a cut state. The former contained Papa Lambert, Royal Scarlet, Madame Jean Dupuy, Mrs. J. W. Grant, Marchioness of Londonderry, Princess de Sagan, and Madame Jules Grolez. In the boxes were good flowers of Madame Antoine Mari, a beautiful Rose; Alliance de Franco Russi, Frau Karl Druschki, Prince de Bulgarie, Souvenir de Pierre Notting, and Clara Watson.

Messrs. Jas. Veitch and Sons, Ltd., Chelsea, made a display of hardy flowering trees and shrubs, also a varied display in which *Schizanthus Wisetonensis* made the chief feature. The plants were dwarf, and the colours excellent, several new shades being on view. They were greatly admired by the visitors. Other subjects were *Tillandsia Lindenii*, and some cut Tulips.

From Messrs. H. Cannell and Sons, Swanley, came a good strain of herbaceous *Calceolarias*, both in selfs and spotted

Messrs. J. Peed and Sons, West Norwood; a few of the most conspicuous were *Primula cortusoides*, *Anemone sylvestris*, *A. fulgens Duplex*, *Phlox canadensis*, a variety of *Saxifragas* and *Aubrietias*.

Mr. Amos Perry, Hardy Plant Farm, Winchmore Hill, made a grand display of hardy flowers. The exhibit was boldly arranged, each subject being well represented. Geums in variety were excellent. Tulips were also largely represented, such as The Sultan, Buenaventure, and T. Ostrowskiana. Irises were also strongly in evidence. *Papaver alpina*, *Iberis gibraltarica*, *Phlox canadensis*, Perry's variety, and a collection of orchids were also noted, in the latter a very fine bloom of *Cypripedium macranthum*.

From Mr. M. Pritchard, Christchurch, came a choice collection of hardy plants, the Moutan *Pæonies* being most striking. Other fine plants were *Campanula glomerata dahurica*, *Eremurus robustus* var. *superbus*, a grand spike *Meconopsis cambrica*



Croton Sinitzianus. (See page 430.)

forms. Zonal and decorative *Pelargoniums* were staged in splendid form. In the latter section the best were King Edward VII., Alice Hayes, Mrs. Geo. Muirhead, Queen Alexandra, Countess of Crewe, Lord Kitchener, and Defiance.

The Misses Hopkins, Mere, Knutsford, exhibited a small collection of hardy flowers nicely arranged in a bed of moss. The most prominent plants were *Anricula* Queen Alexandra, *A. Golden Queen*, Daisy Alice, a delicate pink; double *Primroses* in variety, and a few quaint forms of *Polyanthuses*.

Messrs. W. Cutbush and Son, Highgate, made a large display of hardy plants arranged in boxes in the natural style. The hardy orchids were, however, the chief feature. They were arranged in blocks, and included the following species: *Cypripedium calceolus*, *C. candidum*, *C. parviflorum*, *C. spectabile*, *C. montanum*, and *C. pubescens*, also *Orchis Morio*, *O. latifolia*, *O. Simia*, *O. mascula*, *O. ustulata*, *O. Sambucina*, and *O. S. atropurpurea*. Truly a fine collection, which included many others than those enumerated. Other plants were *Watsonia Ardernei*, *Lilium colchicum*, and a variety of other plants.

Hardy, alpine, and herbaceous plants were also staged by

plena, *Trollius giganteus*, *Scillas* in variety, and *Papaver Mrs. Marsh*.

Messrs. J. Cheal and Sons, Crawley, made a large display of hardy flowering shrubs in a cut state, also a collection of rock and alpine plants. *Pyruses* in variety were quite a feature, as were also the *Azaleas*. A large variety of foliage was also staged, together with *Phlox The Bride*, *Androsace sarmentosa*, and *Saxifraga*, *Geum dentatum*.

Hardy flowers were again staged by Messrs. G. Jackman and Son, Woking, the chief being *Oenothera speciosa rosea*, *Delphinium nudicaule*, *Incarvillea Delevayi*, splendidly staged, *Conandron ramondoides*, *Trillium grandiflorum*, and *Cyclamen repandum*. The Lilacs here were also staged in good variety, while mention should be made of a new *Clematis*, King Edward VII.

Messrs. J. Waterer and Sons, Ltd., Bagshot, staged a basket of *Rhododendron Mrs. E. C. Stirling*, a beautiful delicate pink variety, that was much admired.

Mr. H. B. May, Dyson's Lane Nurseries, Upper Edmonton, made an effective exhibit of *Gymnogrammas* in thirty-six species and varieties. The plants were well developed, being chiefly of

a decorative size. *Verbena King of Scarlets* and *Miss Willmott* were bright, while *Mignonette Excelsior* and a fine strain of single *Petunias* completed the display.

Mr. Geo. Mount, Canterbury, made a bold exhibit of *Roses*, *Plants of Crimson Rambler*, *Ruby Queen*, and *Alberic Barbier* formed the background, while the splendid examples of *Ulrich Brunner*, *Catherine Mermet*, *The Bride*, *Mrs. W. J. Grant*, *Madame Abel Chatenay*, and *Mrs. J. Laing* formed the chief flowers in a truly fine collection.

Messrs. W. Gilbert and Sons, Dyke, Bourne, again staged a grand collection of *Anemones*, in which the *St. Brigid* strain was most prominent; the double *King of Scarlets* was also strongly in evidence, *A. fulgens*, *A. pulsatilla*, and *King of Blues*. The same firm also contributed a few vases of well-grown *Tulips*.

Auriculas were staged by Mr. Jas. Douglas, Edenside, Great Bookham. The varieties included *Rev. J. D. Horner*, *Olympus*, *Shirley Hibberd*, *Mrs. Henwood*, and a few alpinines.

Tulips.

A fine collection of *Tulips* came from Mrs. Benson, Buckhurst, Withyham. The *Darwin* varieties were especially good, *Margaret*, *May Queen*, *Early Dawn*, *Lulu*, *Grand Monarch*, and *Penelope* were the most striking, while other attractive varieties were *Hatfield Pink*, *T. gesneriana lutea pallida*, *Summer Beauty*, and *Mrs. Keightley*.

Messrs. Alex. Dixon and Sons, Ltd., Belfast, contributed a good display of *Tulips*, which were splendidly developed. The most striking forms here were *Psyche*, *La Candeur*, *Rev. Harper Crewe*, *Retroflexa*, a good yellow, *Bartigon*, *Chameleon*, *S. Bull*, *Suzon*, and *Goldflake*.

Messrs. R. H. Bath, Ltd., Wisbech, made a capital display of *Tulips*. They were well arranged, with a suitable background. The flowers were as erect as though growing on the ground, and the effect was charming. It would be impossible to describe all the good varieties to be seen here, but a few of the most select were *Elegans alba*, *Vitellina*, *Clara Butt*, *Golden Crown*, *La Candeur*, *Mrs. Moon*, *Yellow Perfection*, *La Tulipe Noire*, and *Margaret*.

Messrs. Barr and Sons, Covent Garden, staged a large collection of *May-flowering Tulips*. Needless to say, they were well arranged, and proved most attractive. Those that were most striking were *Nabob*, *Flora*, *Louis XIV.*, *Goldflake*, *Dainty Maid*, *Phyllis*, *Margaret*, *Clara Butt*, *Lantern*, *Glow*, *Mrs. Farncombe Sanders*, and *Inglescombe Pink*. A collection of florists' *Tulips* were also noticed, as being quite clear, and typical of the different sections.

Messrs. Hogg and Robertson, Dublin, brought over a large collection of *Tulips*, the most noteworthy being *Rose Pompon*, *Nezza*, *Salmon King*, *Ixioides*, *May Blossom*, *Clara Butt*, *Orange King*, *Rouge Eblouissante*, *Caledonia*, and *Miss Jekyll*.

Messrs. W. T. Ware, Ltd., Bath, staged a small collection of *Tulips*, in which *Scarlet Emperor*, *Inglescombe Pink*, and *Suzon* were noted as the best.

Messrs. Jas. Veitch and Sons, Ltd., also made a fine display of *Tulips*, both of the *Cottage* and *Darwin* sections. A few of the best were *Buenaventura*, *Edmee*, *Victoria*, *Platystigma*, *Gala Beauty*, *Queen of Roses*, *Snowdon*, and a collection of the *parrot* varieties.

Awards: Floral Committee.

Silver-gilt *Flora* to Mr. C. G. Van Tubergen, junr., for *Iris*es; silver-gilt *Banksians* to Messrs. H. B. May and G. Mount; silver *Floras* to the Guildford Hardy Plant Nursery, M. Pritchard, Gilbert and Son, Cutbush and Son, and A. Perry; silver *Banksians* to J. Veitch and Sons; bronze *Floras* to T. S. Ware, Ltd., J. Cheal and Sons, and H. Cannell and Sons; bronze *Banksians* to J. Peed and Sons, and J. A. Young, Stone House, West Hill, Putney.

Certificates and Awards of Merit.

The following "*Regalia-cyclus*" *Iris*es (a new race of hybrids raised by crossing the *Oncyclus* and *Regalia* groups) were staged by Mr. C. G. Van Tubergen, junr., Zwanberg Nurseries, Haarlem, Holland. They are amongst the finest "new" flowers of the last ten years. The varieties were:—

Antigone.—Parentage: *Iris Korolkowi violacea*, and *I. iberica Van Houttei*. Flowers of moderate size, very graceful in form, coloured bright royal purple over grey, with black midrib. The falls have a black central beam. A.M.

Thalia.—Parentage: *I. Korolkowi* × *I. iberica Van Houttei*. A lovely flower, with standards that open out horizontally, the edges recurving. The ground colour is light grey, almost white, with thread-like veins of violet purple. The falls are blackish red in the centre. A.M.

Isis.—Parentage: *I. Korolkowi violacea* × *I. iberica Van Houttei*. The standards are a shade of royal purple and heliotrope; the falls have a jet-black central beam, the edges being chocolate, with grey showing between the heavy veining. A.M.

Iphegenia.—Parentage: *I. Korolkowi concolor* × *I. cerica*. Standards bright magenta-purple (a lovely shade) veined with black. The falls are dark chocolate brown, with brown heavy veins over light creamy-buff. F.C.C.

Charon.—Parentage: *I. Korolkowi venosa* × *I. atropurpurea*. A most distinctive flower. Standards dull coppery-brown with a rich suffusion of a shade of purple. The falls are velvety black over all the central portion, edged light gold, the black veins permeating this colour. F.C.C.

Psyche.—Parentage: *I. Korolkowi* × *I. iberica Van Houttei*. Standards have a ground colour of peculiar creamy-white, almost primrose, in well-opened flowers, but this colour is more prominent on the falls. The netting is mauve-purple; the falls have the characteristic black blotch at the base of the falls. A.M.

Artemis.—Parentage: *I. Korolkowi violacea* × *I. Mariæ*. Bright royal purple, or violet purple, over white, but the white (or grey) is seen faintly between the edging veins. F.C.C.

Eos.—Parentage: *I. Korolkowi concolor* × *I. cerica*. The standards are rose-magenta with thread veins of a dark shade. The falls are coppery brown, edged buff-grey with black blotch. A.M.

Cymbidium Sandersæ.—A new East Indian species with ivory coloured segments, and lip lined with deep purple within, the edge white, and the centre orange. The flower spike developed on the journey home, the plant having been imported from its native habitat. F.C.C.

Lælia purpurata, *Baronsholt* var (Mr. H. Little, Twickenham).—A lovely variety with narrow sepals, and recurving, wavy-edged petals of a very good white colour. The long well-opened lip is tinted mauve, the veins being light purple, and the throat is yellow. The flower is large and altogether beautiful. A.M.

Odontoglossum crispum xanthotes *Snow Queen* (Mr. H. T. Pitt).—This good white form with lemon spot at base of lip received an A.M. From Rosslyn, Stamford Hill, N.

Odontoglossum crispum, *Theodora* (Mr. de Barri Crawshaw).—Raceme of twelve flowers. These are of good form, blotched and spotted with reddish-brown. A.M.

Odontoglossum crispum Harold (Mr. N. C. Cookson).—The raceme bore seven fine flowers of good form and large size. They are white, each petal with one red spot in the middle; the dorsal sepals and the two lower ones are spotted numerously. F.C.C.

Pteris cretica capitatum (Mr. H. B. May, Edmonton).—The tips of the pinnules—i.e., divisions of the fronds—are foliose and crested, giving this graceful fern an effective character. A.M.

Melon, *The Islander* (Mr. Chas. Ritchings).—A cross between *Ritching's Perfection* and *Sion House*. A green-flesh, of excellent flavour, and melting. "The plant is an excellent grower, sets freely, and bears abundantly." From Highlands, Catel, Guernsey. A.M.

Rhododendron Dawn (Mrs. Mangles).—The form of the flowers and the colour are certainly different from that seen in Waterer's "*Pink Pearl*" (now well-known), but for descriptive purposes we shall liken it to that excellent variety. From Valewood, Haslemere. F.C.C.

Rhododendron Beauty of Littleworth (Mr. H. A. Mangles).—The truss is enormous, with handsome white flowers faintly tinted with mauve, and spotted with violet-purple on the top segment. F.C.C. From Seale, Farnham, Surrey.

Rhododendron, *Gertrude Jekyll* (Mr. H. A. Mangles).—A cross between *R. Fortunei* and *Aclandi*. The flowers are open, with reflexing segments; colours rose in the centre with cerise-carmine edge. A.M.

Sobralia Ruckeri (Sir Trevor Lawrence, Bart.).—Flowers bright mauve-purple, the lip with a primrose central vein, and whitish throat. F.C.C.

Tulipa maculata globosa grandiflora (Mr. W. B. Hartland).—Thick segments, very glossy, and rich crimson in colour, the base being black, edged with yellow. A.M.

Tulip John Ruskin (Mr. W. Baylor Hartland).—A long, oval flower, the segments coloured mauve-pink with bright yellow edge. A.M.

Tulipa Tubergeniana (C. G. Van Tubergen, junr.).—This *Tulip* has something of the *T. retroflexa* form, but is larger, and the colour is brilliant rich scarlet. A.M.

National Tulip, May 17th.

Although the competitors in the Drill Hall, Westminster, were few, and the show by no means large, it was a great improvement on last year's exhibition.

The large class for twelve dissimilar rectified *Tulips* was patronised by five exhibitors. Miss E. Willmott, Great Warley, was placed first, and should be congratulated upon her success at the first time of asking. The varieties were *Sutherland*, *San José*, *Mabel*, *Guido*, *Sir J. Paxton*, *Annie McGregor*, *Bertha*, *Excelsior*, *Modesty*, *Talisman*, *Masterpiece*, and *Mrs. Lea*. Mr. A. Chater, Cambridge, was second with good blooms of *Annie McGregor*, *Adonis*, *Burdett Coutts*, and *Sarah Headley*. Mr. J. W. Bentley, Middleton, Manchester, was third, while both fourth and fifth prizes went to Cambridge.

The class for six dissimilar *Tulips* was contested by six exhibitors. Here Mr. J. W. Bentley secured first place with *Duke of Devonshire*, *Stockport*, *Lord Stanley*, *Annie McGregor*, and *Julia Farnese*. Miss Willmott must have been a good second, *Mabel* and *Guido* being her best flowers. The third position being taken by Mr. W. Dunn, Cambridge.

There was a keen competition for three feathered Tulips. Miss Willmott secured premier honours again with Mabel, Lord F. Cavendish, and Guido. Mr. J. W. Bentley followed with Julia Farnese and Stockport, while Mr. A. Chater was placed third. For three flamed Tulips Mr. J. W. Bentley was placed first with Lord Stanley, George Edward, and Annie McGregor; Mr. W. Peters followed, and Mr. A. Chater brought up the rear.

The breeder Tulips were well represented. The first class was for six dissimilar varieties. Here again Miss Willmott scored first place. The blooms were of good colour and substance, the varieties being Adonis, Mrs. Barlow, Willison's King, Elizabeth Pegg, Annie McGregor, and Goldfinder. Mr. W. Peters followed with typical blooms of John Smith, Adonis, J. Heap, and Mrs. Barlow. Mr. W. Dunn made a good third. There were seven competitors in this class. For three varieties there were five competitors, Mr. J. W. Bentley scoring well with Alfred Lloyd, Queen of England, and Alice Grey. Miss Willmott was second, and Mr. W. Dunn was third.

The single bloom classes were well patronised. The feathered bizarres brought out five competitors. Miss Willmott was first with Attraction; second, Mr. A. Chater, with Masterpiece; and Miss Willmott third with Everard. The prizes for feathered bybloemens were awarded as follows: Mr. J. F. Kew, with Bessie, first; Mr. Chater, with Adonis, came second; and Mr. W. Dunn third with George Edward. The roses included some good flowers. Mr. Chater was first with Annie McGregor; the same exhibitor was second with Industry, and third with Court.

For single flamed bizarres Mr. C. W. Needham was placed first with Sir Joseph Paxton, Mr. J. W. Bentley second with Maud Stanley, and third Mr. W. Peters, with Dr. Hardy.

In flamed bybloemens Mr. J. W. Bentley was placed first with George Edward, second Mr. W. Dunn, with Talisman, and third the same exhibitor, with Friar Tuck.

For flamed roses Miss Willmott was placed first with Rose Hill, also second with Annie McGregor, and Mr. J. W. Bentley third with Mabel.

Bizarre breeders: Mr. A. D. Hall, Harpenden, won first with Alfred Lloyd; Mr. Bentley followed with Goldfinder, also third with Sir Joseph Paxton.

For bybloemen breeders, Miss Willmott was first with Adonis, second with Martin's 117, and third with Talisman.

For rose breeders, Mr. W. Dunn scored with Loveliness, also second with Rose Hill, and Miss Willmott third with Mrs. Barlow.

The Samuel Barlow special prizes were won by Mr. J. W. Bentley with Bessie and Sir Joseph Paxton, Mr. W. Dunn second with Adonis and Samuel Barlow, Mr. A. Chater third.

Royal Gardeners' Orphan Fund: Annual Festival.

The annual festival of this philanthropic institution was held in the Hotel Cecil, Strand, London, on Tuesday evening, under the chairmanship of Sir J. J. Trevor Lawrence, Bart., and 180 attended. Among those present we noted Sir J. D. T. Llewelyn, Messrs. F. Lloyd, H. J. Veitch, W. Marshall, H. B. May, James Douglas, Leonard Sutton, Geo. Monro, Jeremiah Colman, W. Y. Baker, W. Cutbush, P. Rudolph and G. Barr, James H. and J. G. Veitch, E. Sherwood, J. Assbee, J. Rochford, W. Bull, E. F. Hawes, G. Cuthbert, Geo. Ingram, P. Kay, W. D. Prior, and J. McKerchar.

The toast list was a fairly long one, and after the loyal recognitions had been given, the chairman introduced the toast of the evening, that of "The Royal Gardeners' Orphan Fund."

Sir Trevor Lawrence mentioned that he had had acquaintance with gardens and gardening from his earliest years, his mother, during the thirties and forties of last century, having been the best known lady gardener of that time. Indeed, she had all but stood alone in her practical devotion to horticulture; but in the present period of time ladies were ubiquitously active as gardeners, and women as professional assistants were numerous. Sir Trevor was one of those, however, who thought that it was hardly a likely occupation for women, for they were not physically developed for the hard outdoor work necessary for successful horticulture. There was more an ornamental than a working form; and the people of this country do not appear to like to see women assuming a rôle so laborious. The art, craft, and science of gardening was nowadays one of the great industries of this country; yet when the present Board of Agriculture and Fisheries was first established, horticulture as a section was omitted. It fell to Sir Trevor Lawrence, who then, as now, was president of the Royal Horticultural Society, to suggest its inclusion, and his importunities resulted in the due recognition of this worthy craft.

The chairman next came to the objects of the Fund, and he had to regret the falling off in the amount of the annual subscriptions. He wished to impress on all those who had the sympathy of gardeners and the appreciation of gardening at heart to become annual subscribers. During the fifteen years' existence of the Fund it had assisted 179 orphans, and expended £12,000; yet it is not sufficiently supported by gardeners at large. And if owners of gardens fully realised their obligations

to the practitioners in the calling, there would also be more liberal support on their part. The chairman chose orchids as one of the classes of plants which demand the vigilant attention of gardeners, and pointed out that even one night's neglect during a period of frosty weather might result in the ruin of a collection worth thousands of pounds, and which was the constant delight of the owner. British gardeners had set an example to the whole world as to how horticulture ought to be practised, and within our islands there were produced finer fruits and finer flowers than could be obtained from gardens in any part of the globe. It would be a disgrace, therefore, to the owner and lover of gardens and what they yield, to leave the orphans of gardeners to beg their bread. He appealed to all who heard him to testify to their appreciation by coming forward with subscriptions for the Orphan Fund.

As a trustee, Mr. Leonard Sutton was called upon to respond, and this he did in an admirably concise speech. Mr. Sutton desired funds to take care of—that was his office in the society—and he supported the chairman's remarks in relation to the responsibility that gardeners have. He went on to remark that none who heard him had orphans; these occur on the death of parents, and it behoved everyone to see to it that they made an effort to meet the needs of orphans. Mr. Sutton threw out a suggestion to the committee that there should be a Children's Orphan Fund as a sub-branch of the institution whose annual festival they were celebrating, and if gardeners' children could be taught to collect each 1s. per year it would far more than pay for the attendant trouble, and ensure at the same time a valuable recruiting force as subscribers when these children had grown up and become active agents in the work of the world. He would be pleased to add the names and subscriptions of his own six children to the children's brigade were his suggestion acted upon.

The toasts of the evening were agreeably interpolated by songs and recitations. Sir John T. D. Llewelyn proposed "The Royal Horticultural Society," to which Sir Trevor Lawrence replied; and the other toasts were "The Visitors," by Mr. J. Assbee, responded to by Dr. W. B. Benjafield; "The Chairman," by Mr. H. B. May, and replied to; lastly "The Press," given by Mr. P. Rudolph Barr, and to which Mr. T. W. Sanders spoke.

Flowers for decorations were presented by a large number of the leading nurserymen from London and elsewhere.

The subscription list was read by the secretary, Mr. Brian Wynne, who stated that the attendance that evening was the best on record, and the amount received was the largest since 1896, when his Grace the Duke of Bedford occupied the chair. The subscriptions were as follows:—Sir Trevor Lawrence, £50; Covent Garden, £152 5s. 6d., including 5 guineas each from Messrs. James Sweet, J. Rochford, E. Rochford, W. Rochford, Parsons, Kinnell, Innis, Alderman Cole, and others; Lord Mount Stephen, £50; Leonard Sutton, £50; Jeremiah Colman, 50 guineas; Lord Rothschild, 10 guineas; Leopold de Rothschild, 10 guineas; Alfred de Rothschild, £5; N. N. Sherwood, £5; Geo. Reynolds (Gunnersbury Park Garden), £42 17s. 6d.; Whitpaine Nutting, £10 4s. 6d.; Chislehurst Gardeners' Association, £10; R. Hooper Pearson, £9; J. Veitch and Sons, Ltd., 20 guineas; R. Smith, Newry, £20; T. W. Sanders, 10 guineas; W. P. Thomson, 10 guineas; H. J. Adams, 10 guineas; F. Lloyd, 5 guineas; H. J. Veitch, 10 guineas; Sir J. T. D. Llewelyn, 10 guineas; "Gardeners' Chronicle" Company, 5 guineas; Anthony Waterer, 5 guineas; W. Howe, 5 guineas; H. B. May, 5 guineas; Protheroe and Morris, 5 guineas; S. T. Low, 5 guineas; Barr and Sons, 5 guineas; Anderson and Sons, 5 guineas; and other amounts, making a total of £815.

Meteorological Observations at Wisley, Surrey.

Taken in the Royal Horticultural Society's Gardens—height above sea level, 150 feet.

Date.	Temperature of the Air.				Lowest Temperature on Grass.	Temperature of the Soil. At 9 A.M.			Rain.	Win l.		Sunshine.
	At 9 A.M.		Day.	Night		At 1-ft. deep	At 2-ft. deep	At 4-ft. deep		Direction.	Total velocity for the 24 hours ending 9 a.m	
1904.	Dry Bulb.	Wet Bulb.	Highest	Lowest.								
May.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	Ins.		Miles.	h. m.
Sun. 8	43	40	48	37	30	49	50	49	—	N.E.	194	—
Mon. 9	45	42	55	34	28	48	50	49	0.07	W.	152	4 24
Tues. 10	45	45	53	43	35	49	49	49	0.03	N.	48	1 30
Wed. 11	49	46	58	35	28	48	49	49	0.01	N.E.	89	4 54
Thurs. 12	55	42	65	47	40	51	50	49	—	S.W.	137	2 3
Fri. 13	57	54	66	50	49	53	51	49	—	S.	182	1 53
Sat. 14	61	57	70	54	49	54	52	49	—	S.	204	8 5
MEANS	51	48	59	43	37	50	50	49	Total 0.11	—	131	2 16

Tuesday, 9 a.m., very heavy mist.



Hardy Fruit Garden.

PLUMS.—It is a mistake to allow these to carry heavy crops. This particularly applies to young trees and those on walls. They will carry with impunity heavier loads than will Peaches and Apricots, but where closely set some of the fruits should be dispensed with. Some of the clusters may be entirely removed, but the thinning must be managed according to the strength and age of the trees, together with some knowledge as to the ultimate size of the ripe fruits of each variety. Train and lay in young shoots as needed for filling up and extending the trees, stopping very strong growths that appear to be taking the lead.

PEARS.—Choice varieties will need thinning if heavy crops have set, or the trees cannot produce fine specimens. Young pyramids and horizontals on walls and espaliers must receive attention to the growths, disbudding and pinching those not required for extension. Merely pinch out the points of growths not needed, leaving five or six leaves from the base. If the stopping is too severe, the lower buds will break into growth, and the prospect of fruit for another season is at once destroyed.

FIGS ON WALLS.—There is indication of a good crop of these. Attend to stopping and arranging the growth, never allowing this to become crowded. Pinch out the points of growing shoots at the fifth or sixth leaf unless it is desired to fill up bare spaces, when they may extend as required. Remove some of the worst-placed and smallest fruits if the crop be too heavy, and give water if the soil is dry.

STRAWBERRIES.—Continue to mulch these with long, strawy litter as the material comes to hand, if all the plants have not yet received this attention. Give water should dry weather be experienced. In the case of old plantations, this watering may be followed by an application of liquid manure. This will assist the plants in swelling the berries to a good size. Remove all trusses from young plants put out late, and remove runners also, unless these are wanted for early layering for pot Strawberries.

INSECT PESTS.—Constant attention will be needed in combatting these. Cherries must be dressed and syringed to resist and destroy aphides. Red spider is almost sure to be present on wall trees after a spell of dry weather. Washing must be persisted in to keep this pest in check. Orchard trees and others liable to attacks from the larvæ of the winter moth may be sprayed with a solution of Paris green, the application to be repeated in two or three weeks' time if the attack is a serious one.

GENERAL REMARKS.—See that no wall trees suffer from a lack of moisture. If the soil has become hardened, first loosen it with a fork, and then apply copiously. Neglect of this may often result in many of the fruits turning yellow and falling prematurely. Give mulchings to Raspberries if growing in hot, dry soils. If manure is not plentiful, spread the lawn-mowings over the roots. Remove the clusters of blossom from small Apples and Pears that were planted in spring, or they may fail to start into growth properly. Frequently hoe amongst trees and bushes, thus keeping down weeds, and helping to maintain the soil in an equable state of moisture.—J. W., Newent, Glos.

Fruit Forcing.

VINES: EARLY FORCED HOUSES.—Where the Grapes are ripe, afford fire heat only to prevent the temperature falling below 60deg. Admit a little air constantly, with free ventilation when the weather is favourable. Do not allow the border to become dry, but keep it moist, and mulch with rather lumpy sweet litter, both to prevent excess of air moisture and to keep the soil from cracking. A little moisture, however, in the atmosphere is not injurious to the Grapes, and is highly beneficial to the foliage, which must be kept clean and healthy. If thrips appear, recourse must be had to fumigation with tobacco paper, or vaporisation with nicotine compound. For red spider there is no better plan than either heating and sulphuring the hot water pipes, or vaporising with Campbell's sulphur vaporiser; but these must be done carefully, for if overdone, the vapour fumes injuriously affect the tender-skinned Grapes, especially the Frontignans and Muscat of Alexandria, and other white varieties.

SUCCESSION VINERIES.—As little fire heat as is consistent with the steady progress of the crops should be employed, for with sun heat and abundance of atmospheric moisture more real

benefit is gained in a week than a month of dull weather with the aid of fires. The Vines being in full growth, the temperature may be allowed to rise to 90deg or 95deg, closing the house at 85deg, employing fire heat only to maintain a day temperature of 70deg to 75deg, and to prevent it falling below 65deg at night, yet 5deg less will do no harm, but good when the weather is cold. These remarks apply only to Vines in full growth and swelling their crops, as those that have the Grapes approaching ripening should have a rather free circulation of air, those advanced in ripening being kept cooler and drier. Air should be admitted very early in the morning, as the sun, acting powerfully on the condensed moisture formed on the foliage during the night, usually causes scorching unless air has been previously admitted.

Watering the borders must be attended to as required, not having stated times, but being guided by the soil's condition. More failures are due to under than over-watering Vines, the borders being properly constructed and the drainage complete. Water may be required twice a week in the case of Vines restricted to narrow and shallow borders, and once a week for those that have a good run of border from the time of thinning the berries until the Grapes are changing colour, but retentive soils may only require water at fortnightly intervals, or even three weeks. This difference must be considered, for there is no question about a soddened soil being injurious to Grapes and a prolific source of shanking.

Liquid nourishment is more frequently required by loose and light soils than by compact and retentive ones. All will need top-dressings of some approved fertiliser (1) when starting the Vines, (2) when the Grapes attain to thinning size, (3) when the berries commence ripening, supplying 4oz per square yard at each dressing, and working in lightly. If more stimulation, or rather nourishment, be needed, supply the manure oftener; this is better than increasing the quantity each time and at long intervals.

LATE HOUSES.—In most places the work now in hand is considerable in thinning the berries, and it will continue for



Jackanapes-on-Horseback.

some weeks, as in many instances the Vines are only in flower. In the latter case maintain a minimum temperature of 60deg to 70deg, 5deg more for Muscats, shaking the Vines twice a day to distribute the pollen, which will be sufficient for all but the shy setters, and these ought to be carefully fertilised, going over the bunches judiciously with a camel's-hair brush, and supplying pollen where it is deficient from those that afford it freely. All the large-berried and free-setting varieties, such as Gros Colman and Gros Guillaume, should be thinned whilst they are in flower, and with those that are likely to have closely-set berries it is advisable to thin before the flowers expand, as a practised eye can tell which flower will set by its vigour, and the removal of the weaker strengthens those left wonderfully. While the Vines are in flower, moderate moisture, with a rather free circulation of air, is desirable. It is also inadvisable to stop or remove laterals while the Vines are in bloom, but when the Vines are fairly set remove superfluous laterals, and pinch as required, both to prevent overcrowding and concentrate the supplies of nourishment in the Grapes.

PLANTING GROWING VINES.—From now to the early part of June is a good time to plant out those raised from eyes in February or March, and grown in pots or turves. The roots need not be disentangled. Indeed, it cannot be done without injury, hence turf-raised Vines are better than potted ones, as they form a straight yet fibrous root, and are not prone to descend deeply or form a corkscrew root-stem as those turned out of the pots with ball entire. Make the soil firm about the turves or balls, give a good soaking with water at 90deg, and mulch with about an inch thickness of short and rather lumpy manure. Maintain a rather humid atmosphere, and shade from bright sun until the Vines become established.—G. A., St. Albans, Herts.

The Flower Garden.

SPRING FLOWERING PLANTS AFTER FLOWERING.—Primroses, Polyanthus, Forget-me-nots, Aubrietias, Arabis, hardy annuals, Tulips, Narcissi, and Hyacinths, used to make a spring display of bloom in the flower beds are, or are approaching, the end of their flowering period, and will need removal so as to make room for the summer bedding plants. Forget-me-nots may be thrown away if a fresh stock is raised later from seed. The hardy annuals, such as Silenes, are of no further use after their flush of flowering is over. Primroses and Polyanthus should be lifted and laid in a moist part of the garden with a view to dividing and replanting at a convenient opportunity. Treat the Aubrietias and Arabis the same. Wallflowers pull up and throw away. Bulbs are the most difficult to deal with, as they ought to remain to mature before disturbance, but as this is impossible in the case of flower beds, lift and replant thickly in a sunny part of the garden. Cut off all withered flower stems, but leave the foliage intact. Beds of Pansies are at their best now, and may remain until they decline in effectiveness. Spring planted Violas will continue flowering a long time in moist soil, especially if afforded a mulching of some rich material between the plants, and watered liberally when necessary.

BEGONIAS FOR BEDDING.—The tubers having been placed in boxes of soil to commence growth, should, if at all crowded, be thinned out to prevent the foliage and stems being drawn. The growth, now dwarf and sturdy, should be maintained so by fully exposing the plants on every favourable occasion until the bedding time. Seedlings of the fibrous-rooted section, pricked out in boxes, may be kept close and growing if small, so that by the additional heat and moisture they may progress well. The early raised plants will be ready for bedding out in June. They are invaluable as an edging to beds and borders, and form attractive beds also.

WEEDS ON WALKS.—The present month during dry periods is a suitable time to apply a dressing of weed killer to gravel paths and drives where small weeds are obtaining a foothold. The preparations advertised are found to be good, applying according to the directions given. One or two applications will destroy a number of weeds, leaving the paths bright and clean. Due care must be taken in applying it not to injure grass or Box edging.—E. D. S., Gravesend.

Primroses.

Jackanapes-on-Horseback and the Galligaskins.

Polyanthus and Primroses rank amongst the most popular of hardy flowers, and they are of the easiest culture, while a number of attractive varieties are readily raised from seed. A correspondent recently desired to know the difference between these flowers. The Primrose is distinguished by each flower-stalk that springs direct from the root-stock bearing only one flower. No matter what the colour may be, if there is one flower only, double or single, at the summit of each stalk, the

plant is a Primrose. A Polyanthus, on the contrary, produces several flowers in the form of an umbel or cluster from one stout stalk that springs from the plant. Polyanthus are



The Galligaskin Primrose.

very beautiful flowers, the laced varieties charming, and the self-coloured or border varieties effective. These latter are often known as Cluster Primroses, because many of them have been raised from Primrose seed, while others have sprung from Cowslips. These may be referred to in future; at the present the curious or grotesque members of the family are under notice.

The Jackanapes-on-Horseback is a very old variety, and was called the Frantieke or Foolish Cowslip, or Jackanapes-on-Horseback, by the famous old author, Parkinson, in the time of Shakespeare. It appears to be a proliferous form of the Galligaskin.

The singularity of these varieties consists in the development of the bracts and calyx tubes into leaves, which imparts to the plants when in flower a remarkable appearance. They are hardy, but best flowered in a cool frame, and are increased by division of the roots and crowns.

The Galligaskin has the collar of leafy bracts much enlarged, and forming quite a collar round the flower. A special feature of the Jackanapes, or Jack-in-the-Green (as it is also called), is that when the green and crimson flowers have faded, the bracts which remain show blood-coloured or crimson stains, and the green and the crimson become intensified during the season. For this reason it is a most interesting little plant. These curious, old-fashioned flowers are seldom met with now, but we saw a very fine collection of all the rare old favourites in Messrs. Isaac House and Son's nursery at Westbury-on-Trym, near Bristol, a week ago. The Hose-in-hose Polyanthus was there also admirably represented.

MARQUIS ITO, the father of Marquis Ito, the unofficial Prime Minister of Japan, was a rustic gardener at one time without the privilege of two swords.

THE BEE-KEEPER.

Queen Excluder.

It is questionable whether there is any other calling so beset with differences of opinion, and dominated by chance, as bee-keeping. Successful apiculture is really a systematic application of judgment and discretion, and one of the many points which apiarists are at variance about is whether the above is absolutely necessary or not.

To begin with, suppose that we have a young and prolific queen in an eleven-bar-frame hive full of bees, and super with a crate of sections without excluder zinc between, the queen will in nine cases out of ten extend the brood nest to the sections, and thus spoil the lot. A queen which would be satisfied with the capacity of an eleven-frame brood chamber would not satisfy the modern bee-keeper. Many will advise the removal of brood frames containing a superabundance of pollen, or honey, and the insertion of bars of foundation prior to supering in the above manner, but in many cases this will result in pollen being stored in the sections, which is almost as bad as brood.

There is, however, something in the methods of working for sections, as it is curious to note that when fine weather follows the putting on of sections, and the bees have taken possession of them, if another crate is added under the first, as it becomes sealed according to the weather they will seldom breed in them. Zinc excluder is cold, but when it has been over the brood nest a short time, it being a good conductor of heat, may be at the same temperature as the surrounding atmosphere, but whether this is so or not is doubtful, but sections worked above celluloid excluders are worked more readily, and completed earlier than those filled over the metal.

There is one objection to the celluloid excluders: inflammability. A spark from the smoker would be sufficient to cause a mishap. There is, however, nothing so certain in preventing either pollen or brood in the sections as queen excluder. Its method of use is mainly responsible for any objections. As a rule, it is placed on the top of the frames, and there is constantly a scrimmage amongst the bees to get through it, which raises the temperature of the hive, and is one of the necessary conditions for swarming.

To obviate this the excluder should be fixed in a wooden frame half an inch thick, and a piece across the centre, which will give the bees access through all the perforations, and a good clear space for movement between the top bars and the excluder, facilitating their operations, and keeping them cool. This also tends to reduce the swarming impulse unless the hereditary tendency of the bees becomes too strong for them. It is also well to remember that if the bees work more comfortably and expeditiously, and there is no loitering, the probability is that by this means the harvest may be increased.—E. E., Sandbach.

Miscellaneous Notes.

The Four Oaks Nursery and Garden Sundries Co.

We understand that at the show of the Royal Botanic Society held at Regent's Park, May 11, the above were awarded a certificate of merit for their Four Oaks Undentable Syringe.

Freehold Land—The Land Co., London.

We have received from the Land Company, 68, Cheapside, London, E.C., a publication descriptive of their plots of land and estates for sale. In their preface they say:—"We have 5,000 acres of land for sale, comprising all descriptions; sites for the mansion down to sites for the modest bungalow or cottage; plots on seaside building estates affording splendid chance of profit on re-sales as estate develops; plots ripe for builders' operations, where houses will readily let; plots in centre of thriving towns; plots on the outskirts; plots and large parcels for bungalows, poultry farms, market gardens, fruit growing, nurseries, &c., near flourishing towns and easy distance of London. If you wish to invest spare capital in land that is certain to steadily and assuredly improve in value, we ask you to give us your premier consideration, and as showing how our building estates have prospered, you need only refer to actual photos in the pamphlet."

Trade Catalogues Received.

Otto Beyrodt, Orchid Establishment, Marienfeld, Berlin.—*Orchids*.

Dicksons, The Nurseries, Chester.—*Daffodils*.

Wm. Paul & Son, Waltham Cross, Herts.—*New Roses*.



TO CORRESPONDENTS

* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

PHOTO OF DENDROBIUM NOBILE ((J. B.).—Thanks for photograph, which we shall have pleasure in using.

TREATMENT OF GLADIOLI BULBILS (Young Gardener).—The small corms should be planted without delay, this being preferably done in March, from 4in to 6in apart, from 2in to 3in deep, in a warm or sheltered border of good, rich, light soil, and, if watered in dry weather, many of them will become large enough to flower next year.

OXALIS CRENATA (Hibernia).—We are unable to tell you where this plant, of which you give such a glowing description, is to be procured in England or elsewhere. Probably its being tender has prevented its continued cultivation, it and *O. tetraphylla* (Deppei) being largely treated of in Thompson's "Gardener's Assistant," page 314 and 315, published in 1859.

BLENDHEIM ORANGE APPLE TREE NOT SHOWING BLOSSOM (R. S.).—This variety is a notoriously shy bearer in its early years, especially as a standard on the free stock, and should not be pruned to any material extent, only cutting away any growths likely to cross each other, thus keeping the head relatively open, and allowing the branches to extend. This appears to be all your tree requires, the pruning only encouraging growth and filling the head with a quantity of useless spray or wood in place of fruitful spurs. Leave it alone, and it will no doubt fruit freely in course of time. To ensure early fruiting, this very fine Apple, alike good for all purposes, and the best for baking, succeeds on the Paradise stock, forming a spreading pyramid or bush, and is also good for espaliers. Its fruiting is facilitated by root-pruning, but it is not generally advisable to root-prune trees on free stocks, as they are not nearly so fibrous-rooted as those on the Paradise. The latter bear lifting and root-pruning well, and it is a means of inducing early bearing in the slow-fruiting varieties.

NOTES ON THE SEXES AND HABITS OF ANTS (Kate).—The ant family (Formicidae) are social insects, of wonderful habits, variations, and instincts. Ants live in communities of various size, and each community is composed of three distinct castes, the male and female, and the worker; a fourth caste may be present as soldiers for the protection of the community. The workers, and the ones most commonly seen, are wingless. The males and females only appear outside the nests at certain times of the year, when they swarm out and fly about in the air, both sexes having large wings, four in number, and delicately membranous. The female is much larger than the male. Soon their flight is over, and the female has her wings roughly torn off by the male, and then they commence to form fresh colonies. Large numbers of eggs are laid by one female. The males perish after the consummation of the sexual connection. The workers or neuters perform all the work of the colony. They excavate the ant-hill or galleries, procure food, and wait upon the larvæ until they leave their cells. They feed the larvæ or young ants, which are destitute of motion, with materials which they disgorge from their mouths, and in fine weather carry them to the surface for the benefit of the sun's warmth, and as carefully in bad weather carry them to a place of safety, also when the nest is disturbed. Ants are chiefly injurious from their habit of farming aphides and scale insects for the sake of the honey-food they obtain, by a process of tapping they adopt, and so tending to perpetuate the stock of these most injurious insects, and also from the mechanical damage they do in pits and other receptacles for plants. They likewise cause unsightly hills on lawns and paths, and the black species that live in decayed wood often injure the framing of greenhouses, &c., when the wood-work has become somewhat decayed. Where fruit, such as Peaches and Nectarines, wall fruit, including Pears, are grown, ants will at times inflict damage, and therefore they should be kept away.

PERISTERIA ELATA (Foreman).—Yes, pot on now; your general treatment seems satisfactory.

THE THREE HEAVIEST BUNCHES OF GRAPES GROWN IN THESE ISLANDS (R. E.).—White Niece, shown by Mr. Dickson at Edinburgh, September 16, 1875: 25lb 15oz. The next bunch approaching this one in weight, was one of Gros Guillaume, grown by Mr. Roberts, gardener at Charleville, viz., 23lb 5oz. A bunch of Black Hamburgh was shown by Mr. Hunter at Belfast in 1874, weighing 21lb 12oz.

DIVIDING PYRETHRUMS AND OTHER HERBACEOUS PLANTS NOW (Planter).—They may be divided, but not well, as this is the active period of their growth, and entails considerable trouble in shading and watering. The best time to divide Pyrethrums is in the latter part of summer, or as soon as the flowering is over, though they may also be divided in spring when commencing to grow. A similar remark applies to herbaceous plants generally.

SELECT TREE CARNATIONS (G. H.).—As you live south of London we would recommend you to try Messrs. H. and J. Elliott, Courtbushes Nursery, Hurstpierpoint, Sussex. The following are good sorts: Brightonian, America, and Governor Bliss, in shades of scarlet or red; Uriah Pike and Lord Rosebery, crimsons; Mrs. T. W. Lawson and Melba, rose pinks; Pride of the Market and Mrs. Leopold de Rothschild, salmon pinks; Duchess Consuelo, canary yellow; Ivory and Lorna, whites.

GRUBS FOR IDENTIFICATION (J. D. M.).—They are grubs of the Daddy-long-legs or Crane-fly, and are specially destructive in pastures, by devouring and cutting the roots. The fly lays her eggs towards autumn. We do not know of any likely cure in your case, where seedlings and young Cabbages are being devoured. The grubs certainly dislike a dry, powdery surface, and if you can sprinkle powdered charcoal on the soil between the seedlings, this may prevent their action to a certain extent. Dustings of soot and lime around the Cabbage plants will be of service, and watering with soot water may also help. Salt they dislike, but this would also be harmful to the plants if in quantity. You should scald the soil before using it in boxes or for potting, as doubtless the leather jackets were introduced with the turf.

HINTS ON PUDDLING TO MAKE A POND (L. F.).—When the excavation is made, or partially so, the bottom puddle near the outer edge is formed, and upon this is raised the upright or side puddle; and as this proceeds the ordinary clay or earth is raised at the same time, by which means the upright puddle is retained in its place; and ultimately the sides, being formed in a sloping direction, admit of being covered with gravel or sand, and may be walked upon, or stakes may be driven to a considerable depth without reaching the puddle or in any way injuring it. This can never be the case if the puddle, as is sometimes done, be laid upon the sloping side of the pond. The sides may slope rapidly or the reverse. If the slope be considerable, sand or gravel, to give a clean appearance, will be more likely to be retained upon the facing, plants can be more easily fixed and cultivated. Gold-fish also find in these shallow, gravelly parts, under the leaves of the plants, suitable places to deposit their spawn, and without this they are seldom found to breed. When a small pond is to be made, and the extent of the surface is marked out, it would then be necessary to form a second or outer mark, indicating the space required for the side puddle, and about 3ft is the proper space to allow for this, the puddle requiring about 2ft, and the facing, which requires to be laid upon the puddle, ought to be about a foot more, making together 3ft.

AMMONIACAL CARBONATE OF COPPER SOLUTION (F. M. M.).—This is usually prepared as required, according to the following formulas: 1. Water, 16galls; carbonate of copper, 1oz; carbonate of ammonia, 5oz. Mix the carbonate of copper and the carbonate of ammonia, and dissolve it in about a quart of hot water. When thoroughly dissolved add 16galls of cold water. 2. Water, 45galls; aqua ammonia (strength 26degs), 3 pints; carbonate of ammonia, 5oz. Form the copper carbonate into a thin paste by adding a pint and a half of water. Add the ammonia water slowly, then a clear deep blue solution is obtained, which does not become cloudy when diluted to 45galls. The latter formula, Prof. Galloway's, is the better article.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (J. M. W.).—1, *Daphne Mezereum*; 2, *Prunus Amygdalus*. (Albyn).—1, *Spiraea Thunbergi*; 2, *Ranunculus amplexicaulis* (see note page 408 in last week's *Journal*). (E. C.).—*Ulmus campestris* variety. (J. McC.).—*Daphne Laureola*. (G. S.).—1, *Cryptomeria elegans*; 2, *Picea excelsa*; 3, *Cedrus atlantica aurea*; 4, *Cupressus Lawsoniana*; 5, *Sequoia* (Wellingtonia) *gigantea*; 6, *Abies nobilis* (porbably). (J. A. B.).—The light or white petalled flower is *Lælia purpurata Russelliana* (syn. *L. p. Schröderæ*), and the mauve-purple one is the true *L. purpurata*.



Pickings from the Journal of the Board of Agriculture.

We have before us two copies of this "Journal," namely one for the month of March—the last issue of the old series—and one for April—the first issue of a new series, sold at 4d. per month, not quite a penny per week, and giving the value of a penny a great many times over. This work can be obtained direct from Whitehall, or through booksellers. The March number has a reference to, and an explanation of, the duties expected from the agricultural correspondents now established nearly all over the United Kingdom. If, as we have before said, the right men have been chosen, and the people interested in the scheme will throw off that apathy that affects the agricultural mind, much good may ensue. The names and addresses of the agricultural correspondents for the neighbourhood will be exhibited at all post offices. We have referred before to the subjects on which these men are ready to advise, and we only hope the thing will be speedily in working order. N.B.—It is a total impossibility that these good men can by intuition divine the needs and perplexities of their neighbours, and we can only hope their neighbours will not be backward in coming forward.

The next article goes on to discuss the various makes of big engines as adapted for agricultural uses. They are time savers, and therefore money savers. We want something better and more easily set agoing than the cumbersome steam engine. Farm work, as done by machinery, is made up not of one continuous day's work, but of odd hours' work, and we want something that can do that work for an hour or two expeditiously and without the trouble of much preparation. These oil engines seem to fulfil these requirements, and as this article before us notes, the carriage of the oil is a much easier task than the carriage of the coal or coke, one ton of oil being equal in generating power to 5 or 8 tons of coal or coke.

It does not come within the scope of our paper to discuss the various makes of engines or their several peculiarities: suffice it to say that no farm is complete nowadays without one of these useful workers of one kind or other. Possibly there is a time coming, and not far distant, when oil engines will be used as the motor power for field operations. Given a machine of reasonable price, and of easy management, the farmer will hail it with joy as the solution of a portion at least of the labour difficulty.

Weeds and their suppression we spoke of before; and we turn next to "Bee-keeping for Small Farmers." We don't think ourselves that profitable bee-keeping will ever become very common. We have found that there are more blank years than fruitful ones. The season of honey flow is often so short, and interfered with alike by heavy rains, cold seasons, and drought, that the bees have no opportunity for laying in stores; only the most meagre supplies. With us we depend chiefly on white clover, the later heather harvest being quite out of our reach; and, again, the initial outlay is rather a serious item; and few men have the knack and skill to make their own hives, and fewer still possess the "art" (for so we may really call it) of manipulating bees. The farmer's wife, too, has more than enough to do already without undertaking much "honey management." The prices also are apt to be very disappointing.

One great bee man of our acquaintance was in despair the other day, for, despite his best endeavours (he is a clever, well-educated and scientific man), he had lost all his bees from foul brood. A few years ago a great interest in this subject was awakened in this neighbourhood, but with a succession of bad seasons the interest has died away.

"Minor Ailments of Poultry" may be read with much profit. We, in common with the writer of the paper, believe in prevention rather than cure. A fowl is an awkward thing to doctor, and we would rather try the effect of "happy despatch" than be messing about with doubtful remedies. The main causes of disaster are summed up as follows: Careless breeding, damp, draughty house, and filth; this last being the greatest of all, and, alas! the most common.

There is an interesting paper on "Cider Factories in Germany" that will, doubtless, appeal to readers in our cider districts. The largest German factory is that of Freyeisen Brothers, Frankfort, which turns out 660,000 gallons per year.

The imports of agricultural produce for 1903 give us some idea of our great indebtedness to our colonies and other countries. Canada sends us more than double the number of

cattle, and over 50 per cent. more sheep than she did in 1902; while the U.S.A. show a falling off both in cattle and sheep. Fresh beef imports from the States increased last year, and so did those of Australia, while New Zealand shows a falling off. Argentina sends us more, and at a lower price per cwt. Fresh mutton imports show an increase both from Argentina and New Zealand. Holland and Australia had a decrease. Mutton, too, has risen in value. Bacon imports remain about the same, with the advance of 1d. per cwt. There is a smaller quantity received from the States, but Canada and Denmark are on the increase.

Hams, too, are advancing in price, and are slowly creeping up since 1899. We have received 85,751 cwt. more butter during 1903 than before, little Denmark being our chief source of supply. Russia has fallen off in her exports; but to make up for that, Victoria, New South Wales, Queensland, and New Zealand are all sending us more. Canada is a defaulter in butter, but more than makes up in her cheese exports, which rise to 69 per cent. of our total receipts—and capital cheese it is! Holland sends us 95 per cent. of our total imported margarine. (We should say our Colonies are responsible for 13 per cent. of our imported butter). Cheese is rising in value yearly, and we think rising in quality as well. More cream is coming in, but, happily, milk imports are very trifling. Eggs still come, and in increasing quantities, Russia taking the lead as our supplier. Just one-third of our foreign eggs came last year from the country of the Czar. We get quantity but not quality, Russian eggs being worth 5s. 6d. per great hundred—120; Danish, 8s. 9d.; and French, 8s. 4d. We think we can account for the higher priced Danish eggs, for each egg has to be laid clean, i.e., washed eggs not admissible. Every egg is tested for freshness, and carefully and well packed, and promptly put on the market. The value of the poultry and game imports is £1,203,086, showing an increase over last year. The other miscellaneous items do not vary much.

Wheat and wheat flour imports have both increased. U.S.A. exports have dropped from 54 per cent. to 27 per cent. of the total, while that from Russia and Argentina has increased. Russia sends 46 per cent. of imported barley; so what with one import and another, we should do badly without her aid. Maize from the U.S.A. has lessened, and Canada has increased. Maize is one of the few articles which has gone down in value. The vegetable imports are so varied and so many that we cannot go into the list; but one thing strikes a good deal. While here the Apple crop was a complete failure in 1903, the price we paid for foreigners was 1s. 4d. per cwt less! so there must have been bumper crops somewhere!

Going on to the miscellaneous notes, we have been much interested by some facts relating to hop culture, or rather we may say to attempted preservation of hops from the attacks of aphides or plant lice. These "lice" are most destructive when they attack the young growths of hop, and the usual means to destroy them is by washing or syringing the growths with some chemical solution. This is a costly and tiresome process. Now, the English insect known as the ladybird will devour the aphides, and thus rid the hop cultivator of a great pest; but sometimes the English species is not to be found in or about the hop yard when most wanted; so from California a consignment of two gallons of ladybirds was received, and set loose in a field of lucerne close to the hop yard. Unfortunately, many of these useful little insects had died during the voyage, but enough remained to breed very successfully. They were found to be very active in habit, and they destroyed large numbers of the aphides. The trial of one season is not conclusive, but it is a natural remedy, and as such may in the near future prove very effectual. The gentleman who carried out this experiment has yet to see whether any of these industrious little friends of his have survived the inclemency of our colder winter.

Work on the Home Farm.

We have had a splendid week for getting on with work. Just as the land for swedes was becoming baked and a little rough after the final cleaning operations, a very nice rain set in, and one good harrowing since has broken down all the clods. We have put a light roller on, and left the land smooth until the time comes for manuring and drilling in about a fortnight.

Where the climate is suitable for kohlrabi, and the crop is deemed desirable, it is time that the seed was sown. The cultivation is very similar to that of swedes, except that a good dressing of spit muck is quite necessary. It is a useful root-crop on warm soils where swedes and mangolds do not thrive; but on land which produces good cabbages we should prefer that old-fashioned plant to its more modern competitor.

The early planted potatoes are coming through, and as there is still plenty of time for a May frost, we are running a one-horse-earthing-plough, and covering up these too early sprouts, prevention being easy, and cure from frost-injury impossible.

As an indication of the lateness of the season we find that many breadths of mangolds are yet to be sown. These late sowings may do well if the summer prove favourable, but the chances are strongly against mangolds sown after May 14.

The rain has been very welcome to our neighbours who had spring corn unsown, and the work has been very rapidly finished off. Clover seeds should now be all got in. Early barley and oats are now strong enough to be harrowed, and the clover seeds can be covered up at the same time, that small weed seeds may be killed.

We shall wash our ewes at once, and clip them as soon as they are dry. We have previously recommended the machine clippers, which save a great deal of labour, and do the work much better than hand shears can. We heard an old clipper the other day objecting to these machines because they cut too close, and leave the sheep in a state unfit to stand much cold. If they are put in shelter for a night or two, however, any such ill effect is very easily prevented. At any rate, two men may readily clip eighty ewes in one day, and get all the wool there is to be had.

Farm Book-keeping.

The following query and answer appeared in the "N.B. Agriculturist":—I intend starting a system of farm book-keeping as follows: One day-book for all things bought and sold, one book for stock, and one with a few pages devoted to each field. All labour, manures, seeds, &c., will be debited against the field, and it will be credited with crop, &c. Could you tell me: (1) How much to charge the field per day for a pair of horses' work; (2) how much to charge (a) the sheep, (b) the cattle, and (c) horses per head for grass eaten on the field; (3) if I should credit the field for cleaning value of Turnips, and if so, how much? (4) If I should credit sheep for droppings, if fed with cakes, turnips, &c., on land, and, if so, how much?—STUDENT.

[The charges referred to will depend greatly on circumstances, and the system of book-keeping which the farmer decides to follow. "Student" might examine the farm account books approved by the Royal Agricultural Society, and published by Messrs. Foster, Groom, and Co., 15, Charing Cross, London.—Ed.]

Board of Agriculture and its Correspondents.

The Board of Agriculture and Fisheries have issued the list of agricultural correspondents, with a copy of the instructions as to their procedure. First of all, the list of correspondents are arranged according to counties; then their names are given alphabetically; and lastly follow the instructions. Scotland (including the Shetland and Orkney Islands), Wales, and England are supplied in every part, the total number of correspondents being 345. One of the duties of the agricultural correspondent will consist "in bringing to the notice of the Board any special circumstance affecting the practice of agriculture, horticulture, and forestry, or the transport of farm, garden, and forest produce in his district, and in making known to agriculturists and others concerned the information contained in the Board's publications."

Among the more important matters in regard to which the Board desire to receive early and detailed information are the following:—

I.—PRODUCTION.

Losses arising from the use of unsuitable, defective, or worthless seeds.

Difficulties in connection with the selection and use of fertilisers and feeding stuffs, and complaints as to their quality or failure.

New descriptions of fertilisers and feeding stuffs.

Losses arising from parasitic or other diseases of animals which are not included in those specified in paragraph 9 of the instructions.

Losses arising from the attacks of insects and diseases affecting crops.

The spread and suppression of weeds.

The partial or complete failure of crops from exceptional causes.

New methods of cultivation and the growth of new crops.

The practical value of new implements and machinery.

Difficulties in the growth and treatment of orchard and garden produce.

The deterioration and possible improvement of pasture.

New and special methods of dairying, and new descriptions of produce.

Difficulties in the breeding and feeding of live stock.

II.—DISTRIBUTION.

Inadequacy of railway and other facilities for transit.

Complaints as to railway rates.

Difficulties at markets with regard to tolls and accommodation (including weighbridges).

Loss of markets at home or abroad, and the decline of prices from any exceptional circumstances.

Methods of marketing, and requirements of purchasers as to quality, packages, &c.

The instructions state how correspondents should explain themselves, that is, it endeavours to insist upon sufficiently explicit information, and supplies examples as a guide. Copies of the publication are obtained from the usual source, 4, Whitehall Place, London, S.W.

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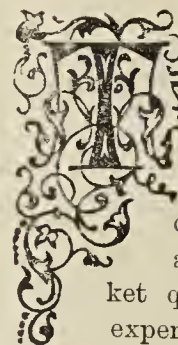
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Journal of Horticulture.

THURSDAY, MAY 26, 1904.

Cordons.



THE fact that most sorts of Pears and Apples are influenced by the stock upon which they are grafted is important in every method of culture, but is especially so in the cordon system, affording the fruit-grower for market quick and sure profit for capital expended, and everybody abundance of fine fruit quickly—so quickly that opponents of the system have repeatedly declared that this very precocity must lead to its downfall, for trees bearing fruit so early could never become robust, healthy, and fully developed, but would soon deteriorate, and either remain sickly, attenuated objects, quite useless for the production of fruit, or die. But they are wrong. The system is a triumphant success. Year by year the trees improve, the stem and spurs becoming larger, blossom and fruit more abundant. Why? Simply because the fruit crop has always been kept within due bounds, and thinned in proportion to the strength of each tree. Years ago it was said of the famous Holme Lacy cordons that they had been in bearing fourteen years without showing any signs of canker or decay, and were then as robust and healthy as when planted, and almost all of them had produced large crops of fruit every year.

For Pear cordons, preference is always given to the Quince stock. Some delicate sorts do not, however, answer when budded upon the Quince, and for such double grafting has been resorted to with complete success, the weaker kind being grafted upon a robust sort growing upon the Quince. Considerable experience and sound judgment are requisite for this process. Burbidge says in his valuable book, "The Propagation and Improvement of Cultivated Plants":—"It must not be concluded that to graft a free-growing sort of Pear on the Quince, and then to regraft it with the desired sort, will always answer. Some kinds require the stock belonging to their race. This can only be found out by the clever cultivator—as, for instance, the Jargonelle

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

on the Beurré d'Amanlis, the union of which is so perfect, and the trees thus formed so healthy, that an acre of double-grafted Jargonelle Pears would be a little fortune to a gardener. Gansel's Bergamot double-grafted becomes a marvel of fertility, and the sorts raised by the Rev. John Huyshe, all of which are of great excellence, become most fertile trees when double-grafted on the proper kind of stock." I have cordons so grafted of Jargonelle, Gansel's Bergamot, and Huyshe's Victoria, and they certainly are wonderfully prolific, Victoria being especially remarkable for the abundance and excellence of its fruit.

Apple cordons should be on the English Paradise stock, which is superior to the French Paradise for cordons, not only for its excellent dwarfing property, but also for the fertility and the late-blooming habit which it imparts to the scion. For example, take two verified cases of Cox's Orange Pippin, on the free stock, the French Paradise, and the English Paradise. The first, though fourteen years old, never had a full crop; the second at first grew strongly, and came slowly into fruiting, but the dozen trees on the broad-leaved stock were alike remarkable for dwarf growth and early fruitfulness. Planting them was quite an afterthought, but it has proved a most valuable one, and I advise fruit-growers who regard Cox's Orange Pippin as a shy bearer to try it upon the English Paradise.

The earliness of the blossom of so many of our best varieties of Apples, and its consequent frequent destruction by frost and cold winds, should induce greater attention to the importance of securing late-flowering stocks calculated to retard the bloom as much as possible. It is surprising that more attention has not been given to a matter of such importance. I have known seed of many kinds sown indiscriminately for free stocks, and believe it is the common practice. The late blooming of Court Pendu Plat and its comparative immunity from frost is well known, and should be turned to account by using it as the stock for standards and large pyramids, or by a system of double grafting it might tend to correct the early-flowering tendency of the French Paradise.

Single diagonal cordons have been strongly recommended for general culture, because, trained as they are at an angle of 45deg, a greater length of stem is gained than could be if they were trained vertically. The direction in which diagonal cordons are trained appears to me quite immaterial. Du Breuil says if the wall is from north to south the trees should incline to the south to afford as much light as possible to the under-side fruit branches. I have, on the contrary, found them answer admirably when inclined to the north. The upper spurs of an inclined tree are always strongest, whatever be the direction of the incline. Beurré de l'Assomption, Citron des Carmes, Beurré Superfin, Doyenné du Comice, Fondante d'Automne, and Maréchal de la Cour are all bad in this respect, but they are, nevertheless, highly valued, and bear plenty of fruit, which is far more important than mere appearance; and the wisdom of hard pinching of the upper growth to induce stronger under growth for the sake of symmetry is certainly questionable when done at the expense of fruit. Many of our best Pears, however, give very little trouble in this way. Some are perfectly symmetrical. A Knight's Monarch now in full bloom is a striking example of this, and I question, if it were cut off a foot from its base and taken away from the wall now, if anyone could tell which way it had inclined.

To vertical cordons no objection can be taken about lateral growth, and I strongly prefer them for walls and buildings over 10ft high. Practically no building can be too lofty for them, and every nook and angle may be turned to account. This fact is of especial importance to the occupants of villas, farmhouses, and cottages having no walled garden, for although cordons answer well trained to fences, yet walls of any kind are infinitely preferable for the greater certainty of a crop which they afford, as well as the superior flavour of the fruit. So far as was possible, I have tried Pears of known excellence both as pyramids and against walls, and have found a marked superiority in the wall fruit generally. Madame Treyve from the wall has been delicious, while it has been uneatable from a pyramid. Beurré d'Anjou, Beurré Clairgeau, Louise Bonne of Jersey, Fondante d'Automne, Comte de Lamy, Williams' Bon Chrétien, Winter Nelis, and Doyenné du Comice, all repay well for a place upon the cordon wall, the last sort especially, for the pyramids of it so often fail, when the cordon almost always has a crop.—C. C. L.

Urceolina pendula.

This beautiful and somewhat curious bulbous plant is seldom to be seen in plant stores. When met with it is sometimes under the name of *U. aurea*, a distinctive name, given, no doubt, on account of its colour, which is principally yellow. Somewhat similar culture to that of the *Eucharis* suits the *Urceolina*, that is, it enjoys plenty of water while growth is being made, and a general stove temperature; but it ought to be kept both cooler and drier when at rest. A fibrous loam and leaf mould in equal parts, with sand, as a compost answers well. The usual period of blooming is early summer, and visitors to the Veitchian nurseries at Chelsea during this period (June) may generally see plants of it in flower. It is a Peruvian plant, the flowers being yellow and green.

The Hollyhock.*

Few plants surpass the Hollyhock in stateliness or grandeur when it is at its best, under favourable conditions, and its proper treatment is understood. They possess a great range of colour, from the purest white to almost black, and if well grown, so that each flower is distinctly seen on the spike, the effect is very striking. It is one of our oldest garden flowers; in fact, its history is very remote. It is mentioned by Gerard and others upwards of three hundred years ago, but only two varieties with double flowers are mentioned, viz., double red and double purple; hence we are probably safe in assuming that these two double forms were the first parents of all our present double varieties.

The crossing of these two with all the various shades of single flowers was taken up by a Mr. Charles Baron, a shoemaker of Saffron Walden, in the early part of the last century, when many shades were produced, all of a semi-double character. These were handed on to the famous raiser, the late Mr. William Chater, to whom we are indebted for the many lovely shades of colour we now possess. Mr. Chater raised and distributed them far and wide, and in 1847 published his first catalogue of named varieties, and continued issuing one yearly, and adding new shades and forms until 1873, when the disease made its first appearance and devastated his plantations with great virulence, and many of his choicest flowers were lost for ever.

For several years after this date it was difficult to procure a plant, either from seed, cuttings, or grafts, in a fit condition for planting; hence the old method of propagation had to be discarded both in raising plants and also in the cultivation for flowering. The wintering of plants under glass for propagating purposes had to be abandoned, and the treatment of the Hollyhock as a hardy plant was found to be the only method by which the disease could be combated, and the raising of plants from seed the only practical form of propagation. In fact, all our named varieties are now obtained from seed, all being raised in the open ground, and they are equal in quality and far superior in constitution to those propagated by means of cuttings or grafts.

SOWING SEEDS.

The seed of the Hollyhock may be sown in the open ground at the end of May or beginning of June, when it will quickly germinate, and in a few weeks will form one single tap root. When these attain to the size of the little finger each plant should be partly lifted with a spade, entirely severing the tap root, after which new fibres will soon be formed, and in a few weeks it will be in good condition for transplanting to its flowering quarters.

The Hollyhock requires a good depth of soil, and in order to obtain the best results it is most important that it should be well prepared by trenching or double digging to the depth of 2ft at least, leaving the bottom soil at the bottom, and if it is of a poor or light character a plentiful supply of cow manure should be incorporated as the work goes on. The soil being thus prepared for the planting, proceed with the work as soon as the plants are of sufficient size, bearing in mind that if this can be accomplished by the end of August or the early part of September so much the better, as the plants will be enabled to become well rooted and established before the winter sets in. For although the Hollyhock may be considered under this treatment quite hardy, I have known it to succumb and wither away when planting is deferred until late in the season. The plants require plenty of space in order to develop their large spreading foliage. They also like an abundance of air, which is indeed essential to a healthy growth; hence a distance of not less than 3½ft apart is absolutely necessary. Little further remains to be done but an occasional look after a grub similar to that which attacks Lettuces and other plants during the autumn. If left undisturbed it will work great havoc and mischief, but its presence may easily be detected, as the plants will show symptoms of flagging and withering from the root, being all but eaten through; but it can easily be arrested by removing a portion of the soil with a pointed stick a few inches from the surface.

CULTURAL HINTS.

Keep the soil well stirred by frequent hoeings during the spring months. Secure the plants against boisterous winds with a strong stake about 4ft in length, tying the plants to it as growth proceeds. Give copious waterings with liquid manure during dry weather whilst the buds are forming; a mulching of stable litter will also be of great service in assisting the plants to open their numerous flowers, and also in prolonging their flowering season. Thin out the buds where crowded, leaving them evenly distributed up the spike; where large flowers are required the top of the spike may be shortened,

* * "The Hollyhock," by George Webb. Reprinted from the Journal of the Royal Horticultural Society.

but in doing this we are also shortening its duration of flowering. Remove all lateral shoots from the stem, and where not required for propagating purposes all lateral shoots from the bottom are better cut away, leaving one spike only to each plant. Continue the watering even whilst in bloom, should the weather remain dry, as this will enable the uppermost buds to open into good flowers, and then produce a handsome spike of three or more feet of flower length.

DEFINITION OF AN IDEAL SPIKE.

Perhaps it may not be out of place here to give the definition of an ideal spike as set forth by the late Mr. W. Chater in one of his old catalogues. "In judging, the first point I notice is the individual flower on the spike, the petals of which consist in their being of a thick substance, the edges smooth and even; the florets occupying the centre must be full and compact, closely arranged, rising high in the middle, and of a globular form, with a stiff guard petal extending about half an inch, or in proportion to the size of the centre ball, so that the different parts of the flower present a uniform appearance. Second, the arrangement of the flower on the spike should be regular, not crowded together in a confused mass, nor loosely hanging with open spaces between each flower, but so disposed that the shape of each may be distinctly seen when fully blown, the uppermost covering the top; nothing can add more to its beauty than a few small green leaves, which give it an elegant and graceful appearance."

The plants, having finished blooming, may be cut down, and if intended to flower a second year they will need protection during the winter, so that rain or snow can find no lodgment at the crown, as, if it do so, the plant will rot away; a covering of bracken or short stable litter is a very good protection. If the soil is wet or of a heavy retentive nature, it would be advisable to remove the plants, say to the foot of a south wall, protecting them in severe weather with a light covering of litter, for although the unbloomed seedlings are perfectly hardy, the bloomed plants need this extra care and attention. They may be replanted by the end of March, and treated exactly as recommended for the unbloomed plants, but will require their shoots thinning out when of sufficient size.

CUTTINGS AND GRAFTS.

Should any extra fine specimens be obtained from seed, and it is desired to perpetuate them, the propagation by cuttings or grafts must be resorted to, in which case the bottom of the side laterals must be allowed to remain, simply shortening them back a few inches in order to allow the buds at the base to develop. These will produce the summer cuttings. Each shoot should be cut up into lengths of about 4in, cutting each immediately below a bud, and allowing the leaf-stalks to remain. Place the cuttings in a smoothly prepared bed in the open ground, leaving a portion of both the leaf-stalk and stem above the surface; in fact similar to the propagation of Vines from eyes. Sprinkle the cuttings over with water should the weather come dry. They will start to root in a very short space of time, and when sufficiently rooted they should be carefully lifted and potted in 54-size pots. The Hollyhock strikes root very readily in this manner, and may be propagated in very large numbers, but the difficulty is to preserve them during the winter. I have known plants, which appeared strong and healthy in every way, die off unaccountably by the thousand in the winter prior to the fungus making its appearance. A light, airy, cool greenhouse seems to be the most suitable shelter.

Another plan of propagating is from cuttings or grafts under glass in the spring. Plants intended for this purpose should have all their growth removed at the end of the flowering season, leaving only the eyes, or dormant buds, which will furnish the spring cuttings. Remove a portion of the soil from the main stem with a trowel to the depth of 2in, and about 9in from the main stem; mound the roots well up, covering all the eyes over with cocoa-nut fibre, or some other similar material, and see that every particle of the stem where there is a bud is well protected. This covering is a means for protecting the eyes, which will produce the future cuttings, against the disease, since the condition of the atmosphere at this season of the year is highly favourable to its development. By the end of October, lift the plants carefully, shorten back their longest roots, pot them into 16-size pots, plunge the pots outside in a bed of cinder ashes, and protect their stems and buds as previously recommended. They may remain thus until about the first week in January, when they should be placed in a moderately warm greenhouse, near to the glass, admitting air on all favourable occasions, and of course removing the cocoa-nut fibre.

Growth will commence in a very short time. Take off the cuttings and plant in small pots in the same way as with Dahlias, and place the cuttings in a close frame for about three weeks or a month, admitting air at night in order to avoid their fogging off. They can then be introduced to a gentle bottom heat, and when sufficiently rooted, gradually harden them off in a cool frame or house, shifting them into larger-sized pots, ready for planting out in their flowering quarters in March or April. When propagating by graft, select well-ripened roots

of single varieties; or, if single ones are not procurable, portions of the roots of old double ones, and cut them into lengths of about 4in. The system generally adopted is that of whip-grafting; treat these exactly as recommended for the cuttings.

There is yet another system by which they may be propagated. This is by budding in the summer on to the roots of single varieties. Select well-ripened side shoots of the summer growth, as advised for the summer propagation, and insert them in the root close to the neck of the stock, similar to the budding of dwarf Roses on the seedling Briar.

In propagating under glass it must be borne in mind that there must be no suspicion of disease (*Puccinia malvacearum*), since the somewhat close and damp atmosphere of a greenhouse is a most suitable breeding ground for its development, and when plants are once attacked it is very difficult indeed to



Urceolina pendula. (See note.)

eradicate it; hence the raising of seedlings under glass for flowering the following summer is not recommended.

There is another form of disease peculiar to Hollyhocks, which wrought great havoc amongst them in past years, and when prevalent was more destructive even than the *Puccinia* of modern times, since it did not attack its victim until the plant was just coming into flower, and in some instances until actually in full bloom, and then the whole plant would wither and die in a few hours, which was considered at that time very mysterious, and to which no apparent cause could be attributed, the plants to all appearance being perfectly healthy during the evening, and by the morning completely withered up.

The late Mr. W. Chater attributed it to their being planted in new soil freshly broken up. I have not seen this disease for years; in fact, practically nothing of it has been discerned since the competitive times; hence I think we may be safe in assuming it had its origin from overfeeding with undecomposed manure and other gross materials in order to obtain extra large blooms for exhibition purposes, which no doubt brought about a disease at the root, as no trace of any form of disease was to be seen either on leaf or stem.

(To be concluded.)



Cypripedium Le Douxæ.

This most distinctive and handsome hybrid *Cypripedium* was exhibited from the garden of Sir Trevor Lawrence, Bart., Burford, Dorking, at a meeting of the Royal Horticultural Society in the Drill Hall, Westminster, during February. We inquired the parentage from Mr. White, Sir Trevor's orchid-grower, but he was unable to inform us offhand; but Mr. Shayler's drawing represents the form of the flower admirably. The surface of the segments and pouch, which are rich dark brown, is smooth and glossy. It is of easy culture, and flowers freely, requiring a warm house.

The Week's Cultural Notes.

Newly imported *Cattleyas* and *Lælias* are often overdone with compost the first season, the usual course adopted being to lay moss and peat on the crocks directly signs of growth take place. But if these were left in the crocks only for the first summer at least, they would be all the better for it, the first roots to assist the plants much usually appearing after the first set of growths are almost mature. Although there are often a few straggling roots from the older stems, they do not amount to much, and are more likely to live among crocks than peat and moss.

Besides this, the real new roots, when they do come, would have to enter half-worn-out material if this is placed on early, whereas if placed later, just as the roots start, the moss and peat will be fresh, will take water freely, and be in every way more satisfactory. With *Dendrobiums* it is rather different, many of these beginning to root freely from the new growths at a very early stage of the latter's careers, and the compost is necessary for them to obtain the full cultural advantage. *Cypripediums*, again, are almost always rooting, and beyond spreading out for a few weeks in a moist house nothing further need be done until they are potted in the usual way, only using a rather lighter make up than for established plants.

These latter are amongst the easiest of orchids to establish when received in anything like good condition, and in this way differ from such plants as *Bolleas*, *Pescatoreas*, *Warszewiczellas*, and similar sorts. I have frequently had what appeared to be healthy clumps of these, with sound hard-looking eyes, yet they would not start freely or establish themselves quickly. The best plan is to pot them at once, after cleaning, in pure crocks, without any moss or other ingredient, to place them in a moist, shady, and well-heated house, and water the crocks twice daily.

If after a week or two of this convalescent treatment the buds at the base swell up and start freely a healthy plant may be the result; but if the specimens do not take with a will to their new quarters the first season, the probability is that they never will, and for all practical use they are they may as well be thrown on the rubbish heap. All this class of orchid like a broken light rather than heavy shade, the kind of light thrown by interposing climbers on the roof.—H. R. R.

Cymbidiums.

Although the number of *Cymbidiums* usually cultivated is not large, they form an important genus to the cultivator having a display to keep up, some being really noble plants for exhibition, lasting a very long time in full beauty. It is a well marked and distinct genus, containing many more species than those noted below; but these are the best known, and most generally useful. Most of them are thick, fleshy rooted plants, liking in consequence fairly large pots and good sound compost. Drainage should have especial attention owing to the large amount of root moisture needed.

The larger growing *Cymbidiums*, such as *C. giganteum* and *C. Lowianum*, when thoroughly healthy and strong, are almost aquatic in their needs, and rapidly make immense specimens. But if neglected they are apt to get bare in the centre, and as nothing can, as a rule, be done to remedy this defect, it is usual to split such plants up into a number of smaller ones. And it is no light job as a rule to get them apart, the rhizomes and old pseudo-bulbs getting very hard and woody. I have often had to bring a mallet and stout chisel into use for this purpose.

A few good leads must be secured to each division, and all decayed roots, dead bulbs, and sour compost must be removed before placing in the new pots. A rather lighter compost than usual may be used for this first potting, adding the usual quantity of loam at subsequent renewals. Most of the *Cymbidiums* do well in the intermediate house, but *C. Lowianum* may be

grown quite cool if necessary. None of them must be really dry at any time, but more moisture is necessary during summer than winter. The leaves are often attacked by a small brown scale, that adheres most tenaciously, and often occasions a lot of trouble to remove.

C. Devonianum is a pretty and interesting species, its blossoms being very variable in colour, and borne on pendent racemes that spring from the last-formed pseudo-bulbs. Olive-green, yellow, and purple are the predominating colours. The plants make neat specimens for baskets, in which they do well, and the flowers are shown to perfection. A native of the Khasia Hills, Sikkim, Assam, and other localities, it was sent home to the Chatsworth collection as far back as 1837 by the late Mr. Gibson, who introduced so many fine orchids.

The superb *C. eburneum* is fortunately cheap enough to be included now in all collections, though once it was very rare. Of handsome habit, it looks well in the house at any time, while its deliciously fragrant flowers are the finest in the genus. They are produced two or three on a spike, from the axils of the upper leaves; the sepals and petals are pure ivory white, the lip white, stained with yellow, and often dotted with purple. The habit of *C. eburneum* is rather singular, young specimens having a good deal the appearance of a *Vanda* or other distichous orchid. As the stems get older they thicken at the base into a pseudo-bulb, though at first there is no sign of this. It is a native of the Khasia Hills, and found at great elevation, this fact doubtless accounting for the difficulty at first experienced in importing it alive.

C. giganteum, from the Himalayas, is a handsome species, with stoutish pseudo-bulbs, and pale green, flag-shaped leaves. The spikes contain many flowers, the sepals and petals being yellowish-green, with dotted lines of crimson, the lip much brighter in colour. It thrives in quite a cool house. The flowers of *C. grandiflorum* are almost entirely green excepting the lip, and this perhaps accounts for its lack of popularity. It is useful where a representative collection is aimed at.

C. Lowianum is perhaps the most popular of all, and an excellent exhibition orchid. The yellow sepals and petals are lined with red, and the lip has a deep maroon purple blotch in front. Introduced by Messrs. Low through their very successful collector, Mr. Boxall, in 1877, it rapidly made its way to the front; it is a native of Burmah, flowering in spring, the blossoms lasting a very long time in perfection. *C. Tracyanum* is a fine, handsome plant, very like *C. giganteum*, but superior. It is named after Mr. Tracy, of Twickenham, who purchased the original plant among some *C. Lowianum*.

C. eburneo-Lowianum is, as its name implies, a hybrid between these two species, and it combines the beauty of its parents, having longer spikes and more flowers than *C. eburneum*, the outer segments pale yellow, the lip having a V-shaped blotch of reddish crimson. It thrives well in an intermediate house.—H. R. R.

Odontoglossum grande and *O. citrosum*.

Odontoglossum grande will be one of the principal intermediate orchids requiring attention this month. Hitherto they have had a good rest, being kept on the dry side since their bulbs matured. New growth has already started, and root action will soon follow. Any potting required should be done just as the roots show at the base. I find the best compost for these plants is leaf soil, surfaced over with fresh chopped sphagnum moss. Growth and root action is wonderfully vigorous, and one is also assured of good strong flower spikes. I need not say that in this mixture very little water is required, a slight moistening of the surface moss being quite sufficient.

Odontoglossum citrosum is one of the most pleasing and delightfully scented orchids now in flower. They are grown here in shallow pans, so that they may be suspended, the flowers are thus shown to more advantage. As soon as the spikes are off top-dressing or repotting should begin, using peat and moss in equal proportions. They should not be kept long in a saturated condition, but allow them to get moderately dry before giving them a fresh supply of water. Give them a fair amount of sunshine and air. Whilst in flower it is best to keep the atmosphere much drier, so that the flowers will last longer in good condition without spotting.—"Orchid Review."

Asparagus in the Slums.

Quite recently the enormous consignments of *Asparagus* to the London market created a glut which brought down prices to an abnormal figure, and so plentiful was the supply that even the hawkers carried what in ordinary circumstances may be regarded as an aristocratic vegetable into the unfamiliar regions of the East End. Again large quantities of *Asparagus* have been received at Covent Garden during the last few days, and prices are consequently down. Although much of the *Asparagus* is French, a good half is English, with the bright green stalks and delicate flavour beloved of the epicure.

Belvoir Castle.

None of the bright spring days that have been our delight and the cause of reinvigorating one's passive spirits during recent weeks, it was our privilege and pride to journey to ancient Belvoir, whose lofty castle meets the eyes of southern travellers at an hour's journey from its massive walls. For it is in view from afar off; its lofty structure supreme above the mounds of woodlands that undulate around it for miles and miles. What is called the Belvoir country—splendid for agriculture and for hunting—expands west and north in a nearly level plain, while eastward and to the south the land is likewise even, though studded with arboreal growths that shelter the fertile farms and gardens. Over all this wide domain the castle of Belvoir finds survey, and the peoples of the plain look upward to it. Raised 443 ft. above the level of the sea, the occupants of Belvoir Castle can plainly see Lincoln Cathedral on clear days, although this largest of English churches is twenty-seven miles to the north-east. Peck, in his MSS. dated 1727, justifies the name of Belvoir (pronounced Beever), which is derived from the beautiful prospect of the surrounding counties, by his list of 173 parishes in the counties of Nottingham, Leicester, and Lincoln, which can be seen.

Belvoir Castle itself is situated in the north-east corner of Leicestershire, very near to the borders of Lincolnshire, and Grantham, the post town, is 8 miles distant. The hill upon which the castle stands is 200 feet above the level of the land immediately adjacent, and its vernal slopes are flanked by stately woods that resound with the mellifluous songs of a thousand birds. His Grace the Duke of Rutland, K.G., and family enjoy this resplendent home and the handsome gardens which our notes describe, and on certain days in each week the public are free to visit some of the finest parts of the grounds and flower gardens, which privilege is very freely utilised and well appreciated.

The present castle was built in 1801 and succeeding years, but an old part of the preceding castle, dating back to early in the sixteenth century, remains. Several castles had occupied the same adaptable site, and had disappeared, for conjecture places the occupation of this place anterior to the coming of the Normans. The earliest record of a castle, however, is the description of one that was built by Robert de Todeni, standard-bearer to William the Conqueror, who also built a priory at the foot of the hill, where he was buried in 1088. The present noble owner is a descendant of this brave Norman, but the name has changed through the property passing at various times to daughters.

The ornamental gardens, with their beautiful evergreen and flowering trees and shrubs, are renowned for their spring and summer floral effects, and with reason; but though the beauty of the Castle Garden and the Duchess Garden is remarkable, and can never fail to cause wonder or give pleasure, the fruit, vegetable, and herbaceous plant gardens, all within the walls, are also exemplary in every respect. This particular part of Mr. W. H. Divers' charge is removed to an easy distance from the castle. The place is spacious: 7 acres are circumscribed and sheltered by the four lengths of masonry, and the extramural area under culture is 7½ acres more. A word should be given to the walls particularly, for they are not only handsome and in excellent condition for the purposes of the fruit culturist, but they are also substantially ornamental, inasmuch as here and there a turreted or pinnacular addition to the broad coping supplies dignity and stateliness. The walls, as a feature in gardens, are almost constantly utilitarian, and that only; but by the least elaboration, how different they appear! The proportion of the above total of 14½ acres of cultivated ground used for vegetables is 2¾ acres; 2¼ acres are used for fruits of

various kinds, and the remaining 9¼ acres are occupied by vineries, plant houses, frames, bedding-plant ground, drives, and paths. I say drives advisedly, because it is not uncommon to see the Duke's carriage, drawn by two horses, go spanking round the garden and down the broad central walk. The breadth of these is 12ft., and they are in admirable condition. The wall fruit trees gave promise of an abundant crop, in common with the trees of all the gardens we have seen this year; and at Belvoir the training of the trees is a point that can hardly fail to attract the visitor's attention. Morello Cherries, fan-shaped, and cordon Currants and Gooseberries, are upon the same length of wall; while Pears and Plums occupy most of the other positions. Care is taken in due time to protect the blossom by netting and by tiffany or other light material. These are fixed to spars which are laid obliquely against the wall. The walks are sided by pyramid Pear and Apple trees, but on either side of a transverse walk there is a line of dwarf vase-shaped Apple trees, the centres being kept completely free and open, but splendid fruits are secured from trees so trained. Practically all the finest varieties of the different fruits succeed, and so many as 153 kinds of Apples, and 120 sorts of Pears are cultivated. The soil is a stiff clay, and consequently cold, causing crops to be late. Apricots succeed very well, and what is said to be the largest Apricot tree in the kingdom is pointed out upon the stable wall. This variety, the Roman, has its roots beneath a granite pavement, and gets no attention in this direction, yet it fruits well. The tree was planted in 1857, is 25½ ft. high, and is 24½ ft. wide. Peaches also succeed on south walls, and Mr. Divers finds the Logan-berry to be very prolific.

Part of the walled-in area, amounting to 1 acre by itself, is divided by another wall from the rest of the garden, and is devoted to the culture of the more choice herbaceous plants in beds. The collection is indeed a very excellent one, and seems to include many meritorious recent novelties. Plants thrive vigorously on the deep cool soil, and what may appear as insignificant little patches or frail specimens in gardens where the conditions are less favourable, are seen here in bold masses and handsome groupings. Notable in this connection were *Iris pumila* and *Fritillaria pudica*; while the breadths of *Narcissi* and *Tulips* in divers parts made up a really brilliant show. Every subject is carefully named, and Drury's Patent Label was in evidence and admired for its modesty, clearness, and utility.

But while there is much here that would interest the lover of hardy plants or of fruit trees, were we merely to mention them, it is necessary to pass on to other features of the very extensive and wonderful grounds. Ere we actually quit the walled garden, however, it will be in place to refer to the glass houses, which are neither numerous nor very adaptable for high-class plant culture. Yet most excellent luscious Strawberries, of rich colour and fine odour, are grown, Garibaldi being favoured. The original Ingram's Strawberry house is still in use, but it is not ideal. Amongst subjects of note in other structures were *Tropæolum Spitfire*, *Celsia cretica*, *Ipomœa rubro-cœrulea*, decorative *Pelargoniums*, and small collections of the better known orchids and decorative palms. The peacheries and vineries are

good lean-to structures, and their occupants are in the best possible condition, and are rendering a fertile yield. Elsewhere the Countess Melon was doing well. A frame filled with Commodore Nut Cabbage Lettuce from a February sowing were really excellent, and very even.

The walled kitchen and fruit garden is connected by paths to the castle, which can be seen above the trees on one side. Having traversed the wood and the castle slopes, one is able to note the hanging gardens, which must, on a much smaller scale, be an imitation of the hanging gardens of Babylon. These terraced or hanging gardens



Cypripedium × *Le Douxæ*.

are situated against the castle on its south side, and the walls that support them are covered with numerous interesting shrubs, as *Magnolia grandiflora*, *Banksia* and other Roses, *Abutilon vitæfolium*, *Rhus Toxicodendron*, *Muehlenbeckia complexa*, *Punica granatum*, *Azara microphylla*, *Forsythia suspensa*, *Chimonanthus præcox*, and many other things.

A Lawson's Cypress, now 43ft high, is seen on the sloping lawns just below, and this was planted by the present king in the year 1846. And amongst other trees that deserve to be mentioned are types of the Loquat, also *Choisya ternata*, 5½ft high, *Lithospermum scoparium*, now quite a little tree, and which even in the open flowers freely. *Erica mediterranea* and *Cistus salvifolius* each assume goodly proportions, while under the tall forest trees all around there are well-placed plantations of the commoner, but none the less beautiful, shrubs. At all seasons of the year spring garden flowers are seen freely naturalised in the grass, and the bright effect they give can well be imagined.

On the west side of the castle we find the Castle Gardens, which are geometrical flower beds, tastefully planned, and filled with harmonious and finely contrasting flowers. Below these Castle Gardens (for the whole situation is on the side of a lengthened slope) appears the Statuary Garden, with other flower beds, each ablaze with colours, and giving a bright reflection amid the surrounding greenery. Five palms—*Trachycarpus excelsa*—occupy the centre, and have resisted the weather since 1899, when they were received from Italy. Only a slight protection is furnished over the winter, and they are 9ft high. The garden takes its name from the statues that surround it, these being "life size" representations of the mythological characters, Juno, Flora, Ceres, Bacchus, Pomona, and Diana. They each cost £35, and were carved in 1680.

The spring bedding in the Castle Gardens may be described as follows:—Beds containing (1) *Aubrietia Leichtlini* and white Tulips, (2) white bunch Primroses and *Tulipa fulgens*, (3) purple *Aubrietia* and Keizers-kroon Tulip, (4) *Triteleia uniflora* and *Muscari Heavenly Blue*, each being small triangular beds. In a large, variously-angled bed were *Myosotis dissitiflora* Dyeræ (with large bright blue flowers), surrounded by a band of yellow Primroses (selected), then purple *Aubrietia*, and an outer band of *Holcus mollis variegatus*, obtainable from Dutch growers, and which makes a beautiful edge. Other plants variously employed were *Phlox divaricata*, *Phalaris arundinacea*, *Heuchera hispida*, *Viola Bullein*, and V. Lord Elcho, *Erica carnea*, *Doronicums*, and double white *Arabis*.

Leaving these gardens, a sylvan path in the shade of tall trees leads over the dell and along the flank of the opposite woody slope to the Duchess' Garden, which is the jewel of the Belvoir estate. Indeed, few places in England can vie with it, and probably none can excel its wonderful beauty. Here are trees of all forms, united with great discernment for effect, and the whole scene of some eight acres in extent is richly filled with both choice and favourite flowering or foliage shrubs, flowering plants being also abundantly utilised. The Duchess' Garden occupies a natural dell on the side of a hill, so that there is ample opportunity for rock gardening, for winding flower borders, for beds, cascades, grassy slopes, and for the disposition of the arborescent vegetation to the best advantage. There are some tall columnar Cupressus, rising amidst resplendent masses of *Acer polymorphum atropurpureum* (over 20ft high), *Rhododendron caucasicum pictum*, *R. Thomsoni* (rich, glowing crimson; a Sikkim species), also *Camellia alba plena*, Lady Hume's Blush, Corallina, and others; and with these choice plants are *Prunus Pissardi*, *Daphniphyllum glaucescens*, *Ilex myrtifolia*, *Olea ilicifolia*, *Rhododendron Griffithianum*, *Styrax japonica*, *Eucryphia pinnata* (10ft), and *Arancaria imbricata*, planted in 1842, and measuring 70ft in height. It will be noticed that for these subjects to consistently thrive and be ornamental, the garden must be warm, and this it is by virtue of its sheltered position. *Arundinarias* and *Phyllostachys* grow admirably, and they are considerably used in various other parts of the Belvoir grounds. It is impossible by mere words to convey an impression of the beauty of this remarkable portion of the estate, but readers must try to visit the place themselves, and the journey will be well repaid.

Though the Duchess' Garden is considerably removed from the castle, yet the Duke's Walk continues onward to Frog Hollow, which is really a pretty bog garden, a mile and a half from the residence. Another walk leads back, still through the woods, to the Castle Gardens again.

The value of one's descriptive notes would have been much enhanced had they been supplemented and assisted by some photographic illustrations of the scenic splendours; but, failing these, I have traced the main features of Belvoir and its gardens with what meed of skill is given me.—J. H. D.

SOILS AND GEOLOGY.—During the ages when the earth was undergoing the formative processes, a great variety of rocks were formed, some of which, when later reduced to soil by the agency of ice and water in their wide distribution, are found to be also of widely varying character; and upon an area of one hundred acres or less may often be found soils that are quite different in some respects.



Some American Apple History.

The first Apple trees planted in America were imported by the Dutch settlement at New York in 1614. Apple trees were also known to have been growing at Jamestown, Va., as early as 1622. Until within the last half century Apples were grown almost solely for cider making, as is the case to-day in France. As hard cider will produce drunkenness and a horrible katzenjammer, William Penn advised his Quaker colonists in Pennsylvania to cultivate indigenous fruits alone, as Apples were then used almost exclusively for making cider or applejack. Many of the early orchards of the pioneers of the Middle West were seedlings obtained in a peculiar way. Some man whose full name has been forgotten, and who is remembered only by the appellation of "Apple-seed Johnny," travelled through the West and scattered among the settlers untold quantities of Apple seeds. He gave them away free of charge, and he was given a hearty welcome at every cabin door. The last decade or two has shown wonderful development of the large commercial Apple orchards in the West, and the industry has now assumed vast proportions. Apples, for instance, are exported to England and many foreign countries. Apple cores from the big drying establishments are purchased by Eastern buyers and shipped to France to be used in the adulteration of wines and champagne. A large part of this champagne and wine is shipped back to America in wine casks made at Poplar Bluff, Mo., in the largest barrel factory in the world.

Young Gooseberries.

The new fruits have arrived for the season, and have made fancy prices (says "The Globe"). They sold at 1s. a quart, and from 8s. to 10s. a peck, the latter prices being equal to 32s. and 40s. a bushel respectively. The Gooseberry crop this season bids fair to be an exceptionally heavy one. In Kent, Essex, Cambridge, Worcester, and Northumberland the bushes are loaded with fruits. The continuous rains have acted like magic upon the fruits, which, in some districts, are as thick as the leaves. Thanks to the rains, the bushes are very free from insect pests, and in no district has any complaint yet been made of the appearance of the Gooseberry caterpillar. There is every reason to believe that Gooseberries will yield larger profits than most fruits this season. The jam makers are expected to be large buyers, the shortage in the fruit crops of the past two years having compelled them to depend to a very great extent upon foreign fruit pulps. Already several large contracts have been completed for the sale of growing crops in Kent at high prices per ton. It is safe to estimate that jam makers will buy up half the entire crops of English Gooseberries this year. If this should prove correct, then good quality berries will be worth more money retail than usual. The popularity of the fruit is upon the increase. Last year punneted Gooseberries made as much as 9d. and 1s. a pound retail. Growers now pack them in this way before marketing them, as they do with Strawberries. As the result of last season's trade, it was found that in many instances punneted Gooseberries realised larger profits than many punneted Strawberries. They were even sold at one part of the season at higher prices retail than Guernsey glasshouse Grapes. Last year they were, in some instances, retailed at prices equal to 50s. a bushel.

Notes on Figs under Glass.

EARLIEST FORCED TREES IN POTS.—When the fruit comprising the first crop on the very early varieties is gathered, return to the treatment applicable to trees swelling their crops. If red spider has gained a footing, thoroughly cleanse the trees with some approved mixture. Syringe the trees forcibly on fine evenings until new growth is being made freely, and in ordinary routine twice a day, in the morning and early afternoon. Where the second crop is thickly set, thin liberally, leaving the fruits nearest the base of the shoots, and do not overtax the trees. Expose the ripening fruits as much as possible, and increase the ventilation. Stop the shoots, and thin where crowded, for vigorous, sturdy shoots produce the finest Figs.

PLANTED-OUT TREES.—The earliest forced trees—those started at the new year—have the fruit approaching ripening, and must not be wetted, maintaining atmospheric moisture by keeping the mulching, walls, and paths properly moistened.

Moisture, however, must be prevented from condensing on the fruit by keeping a steady circulation of air, with gentle fire heat. Care must be taken to afford plentiful supplies of tepid liquid manure to the roots. Allow the leading shoots now to extend, unless unduly vigorous, until they reach the extremity of the trellis, then stop them.

LATE HOUSES.—Though Figs are grown successfully in unheated houses, producing one crop, which affords an acceptable supply of fruit in August and September, they require in some localities a genial warmth, especially the late varieties, such as Negro Largo, to ripen properly. The trees must have copious supplies of water, and be syringed twice a day. In cloudy weather, however, the afternoon syringing should be

to comparative rest for a period of four to six weeks, lowering the heat at the roots to 75deg, admitting air fully at 75deg to 80deg, and letting the temperature fall to 75deg before closing the house for the day. The plants must not be allowed to become excessively dry at the roots, but when a supply is needed, and only then, afford it liberally. The smaller suckers of the plants, placed this spring in the fruiting pots, should be kept growing until they have filled their pots with roots, when, if it be necessary, the plants can be subjected to the same course of treatment as advised for the larger plants, and these will afford a successional supply of fruit.

POTTING SUCCESSIONAL PINES.—When the strongest suckers potted last March have filled the pots with roots, they could be



Mitriostigma axillaris syn. *Gardenia citriodora*.

dispensed with. The young shoots in these structures must be trained a good distance apart, every shoot having full exposure to light and air so as to ensure sturdy, fruitful wood.—GROWER.

Pines.

PROVIDING FOR A SUCCESSIONAL SUPPLY OF FRUIT.—Pine plants, as a rule, yield the finest fruits when they show these ten to twelve months from the time the suckers are potted, but some allowance must be made for the size of them when started, also for autumn-potted suckers, which have to make a part of their growth under adverse influences. Plants that were potted last September will now be showing fruit; if not, means should be adopted to effect it. This can be done by subjecting those of that age not now showing signs of fruiting (this being indicated by the plants having a sturdy, thick base, and the leaves commencing to open in the centre of the plant),

transferred to the fruiting pots. If they are not yet potted no further delay should be tolerated, as to retain them longer in such pots is detrimental to their after growth. Recently potted plants should have a regular bottom heat of 85deg to 90deg, and be thoroughly watered after potting if the soil be dry, and no more should be given until the soil becomes again in that condition, as it is necessary to exercise more care than is usual at this stage, the date of the individual plants being ascertained before its application.

YOUNG PINES.—Growing stock will be making rapid progress, and should be regularly attended to in every particular. Ventilate early in the day at 75deg to 80deg to render the foliage dry before it is powerfully acted upon by the sun. Discontinue shading successional plants, but if very near the glass, and the panes of glass large, a slight shade will be advisable in the hottest part of the day, also for fruiting plants with the crowns in close proximity to the roof.—PRACTICE.

Surface Culture and Mulching.

There seems at last to be a definite break in the continuous wet weather which so long prevailed, and under the influence of wind and sunshine the once sodden soil has dried quickly—in some cases too quickly; and there is now a general desire for some genial showers. All must, however, be thankful for the fine weather of the last few weeks, which has enabled cultivators generally to push forward with work which had fallen in arrear. Exactly the right conditions have also prevailed for thoroughly working the soil between the early growing crops so as to give them a good start, as well as to destroy hosts of weeds in the young seedling stage. A suitable start of this description does much to lessen the work by keeping weeds under later in the season, and as long as the fine weather continues every effort should be made to keep the hoe going among both vegetable crops and fruit trees, to prevent further loss of moisture, as well as to eradicate weeds. Gardens generally are looking wonderfully clean and promising, and when the rain does come crops of all descriptions should bound away with great vigour. The good cultivator will then be ever on the alert to make the most of the advantage gained by adopting various methods of conserving moisture so as to prevent crops from experiencing a check when the heat of summer comes, and in this direction mulching often proves of immense advantage.

Very little has been written about this useful practice during the last two years, for the obvious reason that it has been but little needed, owing to the heavy rainfall and absence of sunshine; but should the fast approaching summer prove a hot one, mulching, if intelligently carried out, will, as of old, play an important part in securing cultural distinction. One cardinal point in connection with the practice is not to carry it out too early in the season. First, thoroughly work the soil, so that the sun may warm it, and then mulch before "King Sol" has gained full power to extract the moisture. Various materials have been successful for mulching, but perhaps nothing is better than partially decayed straw manure from stables. If this has been turned a few times it is open and silky in texture, and thus prevents the escape of moisture, without altogether excluding warmth and air. Fresh, crude cow manure is generally unsuitable, because it sets in hard lumps or cakes, excludes air, and causes the soil to become sour, and therefore prevents rather than promotes root action. When, however, it has been turned a few times, thoroughly divided, and in a half-decayed condition, it is valuable for using on light, hungry soils. Manure from horse stables in which peat moss has been used as litter is also good for the same purpose.

Half-decayed leaves—of which in large gardens a plentiful supply can usually be obtained—are excellent conservers of moisture, and I know of nothing which tends so much to promote surface root action, especially in the case of Vines and fruit trees. Leaves and stable manure mixed form a splendid mulch, and spent tanners' bark is sometimes pressed into service with good results. Short grass which has been thrown from the mowing machines is occasionally used when nothing better is obtainable, and for crops which come off quickly, such as Peas and Broad Beans, it often proves helpful in combating drought. Its great fault is that it harbours insects, especially millipedes, and on that account should be kept off the Strawberry bed.

Before a mulch of any description is applied, the soil should be loosened on the surface; and in the case of fruit trees, if it is very dry, a good watering should be given, as but little good can be done in the way of conserving moisture if the bulk of it has previously been allowed to escape. During very hot seasons mulching must not be expected to do away entirely with the necessity for watering, but crops and trees so treated will continue in a satisfactory condition with fewer applications of water than when the surface of the soil is left uncovered. Peas, Beans, and fruit trees growing against walls are usually some of the first crops in the open air to need this attention. A little later on, Onions, Carrots, and other root crops may with advantage receive similar attention. After the thinning is completed, and the young plants are large enough, in their case I put mushroom manure, or fresh horse-droppings which have been passed through a riddle, should, if possible be used, because such materials serve as a top-dressing to feed the plants as well as a covering to conserve moisture in the soil, and often to prevent an attack of maggot at the root.

When time and materials can be spared, fruit trees in open quarters—especially those carrying heavy crops—amply repay the trouble of mulching in hot seasons; and our famous Rose growers are well aware of the value of a thick covering of dung over the soil when drought sets in a few weeks before a great show. Many a cup has been won in various horticultural contests by paying due attention to mulching, and some have undoubtedly been lost through failing to take advantage of so excellent a cultural practice.—H. D.

NOTES



A Japanese Garden.

Leicester is having a Japanese garden laid out in one of its principal parks. It will contain miniature mountain ranges, clumps of Bamboo, the dry bed of a mountain torrent, and a lake with an island in the centre. There will also be a number of stone lanterns, without which no garden in Japan would be considered complete.

The Late Mr. Thomas Smith.

Mr. Thomas Smith, of Thomas Smith and Sons, the well known Rose growers, died at Blackpark, Stranraer, on May 18. For over half a century Mr. Smith was one of the stalwart figures of the Rhins of Galloway, and for integrity and uprightness was highly respected by his numerous acquaintances. He was famed throughout the United Kingdom as a grower of Roses, and took many of the leading awards at the principal horticultural exhibitions. Mr. Smith was the oldest nurseryman in Scotland, and was in his eighty-fourth year.

The British Gardeners' Association.

Will you kindly allow me to inform your readers who are interested in the proposal to form an association of professional gardeners to include all sections of horticulture, that the provisional committee will submit a definite scheme for its immediate formation at the meeting to be held in the Essex Hall, Strand, at 6 p.m. on June 1. The committee have had assurances of support from many gardeners of all classes, including nurserymen, seedsmen, park superintendents, &c., and there is now every prospect that the association will be a success. There is seating accommodation for 600 only in the Essex Hall, and as it is hoped that the proceedings will begin at six o'clock, those who desire to get a seat should be in time.—W. WATSON, Hon. Sec. Provisional Committee.

Notes from Newton Mearns, N.B.

May is now more than half gone, and has not been an ideal month. With the exception of one or two days, the month has been exceptionally cold. Vegetation on the whole has consequently suffered. However, despite the coldness and wet, there has been an entire absence of May frosts; and should the present climatic conditions prevail for a few days more, we may look forward to heavy crops of fruit this year. The Pears, Plums, and Cherries are in full bloom, but the Apples are not yet showing their beauty, but will in the course of the next week. The bees are not doing much, and although there seems to be plenty of forage, still they cannot get out on account of the coldness; hence swarming will be delayed. The birds of passage have now all arrived, the cuckoo appearing on the 10th and the swallows on the 13th.—N. R.

Condition of the Fruit Market.

The fruit season is commencing in real earnest. Dealers at Covent Garden say that within a few days London will be flooded with Cherries. France, Belgium, and Italy all have double crops, and a few days hence Cherries will be obtainable at ridiculous prices. At the present time over 4,000 half-sieves are being handled daily at Covent Garden, and large quantities go direct to provincial towns. England has received its first shipment of Strawberries from France. English dealers do not look with favour on the French Strawberry, but they are expecting great things from the English crop, which will undoubtedly be good and plentiful. In ten days or a fortnight large consignments will be arriving from Cornwall and Southampton, the Kent crops follow a few days later, and soon prices will be low. The South Australian and Tasmanian Apple season is at its zenith, and vast quantities are being imported. Dealers complain that the last three shipments arrived in such bad condition that there has been a loss of several thousands of pounds. Thousands of cases of Murcia and Valencia Oranges are also arriving, and luscious Pineapples from Egypt are plentiful and cheap. Asparagus is still being imported largely, but the English crop is so good and abundant that foreign competition is materially affected.

Handsworth Horticultural Society.

The schedule of prizes for the twentieth annual exhibition and floral fête of this vigorous society is published. The show will be held in the Victoria Park, Handsworth, on July 22 and 23, when prizes will be given to the amount of about £500. The secretary is Mr. John Edwards, 24, Stafford Road, Handsworth, Birmingham.

Publications Received.

Hand-list of Orchids Cultivated in the Royal Botanic Gardens, Kew. Sold by Darling and Son, Ltd., 34-40, Bacon Street, E., price 8d. * * Black-scab of Potatoes, Leaflet 105, from the Board of Agriculture and Fisheries, 4, Whitehall Place, S.W. * * Kew Bulletin—"New Garden Plants of the year 1903." From Darling and Son, Ltd., price 4d. * * Journal of the Royal Horticultural Society, May, 1904. Price to non-Fellows, 10s. * *

Bee-keeping for Beginners.

This textbook (Kegan, Paul, and Co., 2s.) has been written for the purpose of instruction in schools of this subject, and so as to be in accordance with the syllabus issued by the department. It is the work of a practical bee-master, who has taught the subject in day schools. As this subject is now recognised for secondary and evening schools, the scope of its applicability is enlarged to embrace all rural classes. The author has compressed within ninety pages all the more important facts of bee culture, and has illustrated his subject with many woodcuts.

Messrs. B. R. Davis and Son, Yeovil.

The florist and nursery business of this Somerset firm is admirably situated in one of the sunniest parts of Yeovil, on the west side of the town. While much of their trade is of a local and retail nature, yet their great speciality is the tuberous Begonia; and at this season of the year one finds house on house filled with Begonias in all stages of growth, from seedlings lately pricked off to sturdy, shapely, and healthy plants in flower—developing, in fact for the coming Temple Show. Even in the second week of May the double-flowered Begonias were presenting an excellent display of well-formed, richly-coloured blossoms, and we shall watch their appearance in London with interest. It seemed a capital sign to find both Mr. Davis and his son actively engaged in the practical conduct and work of the business, and from the short run-round which I was privileged to make, it is evident that care and experience are expended upon the business. The Messrs. Davis supply Begonias wholesale and retail, and being situate close to the stations of the South-Western and Great Western Railway companies, they have ample facilities for the rapid delivery of their stock.—J.

Reading Gardeners' Mutual Improvement Association.

The last meeting of the 1903-04 session of the above association was held in the club room, and was largely attended, over one hundred members being present. The president (Mr. Leonard Sutton) presided. The subject arranged for the evening was "The Decoration of Vases with Flowers," and Mr. J. T. Powell gave one of his interesting practical demonstrations in this popular section of floral art. In his remarks he pointed out that if gardeners would take up this subject more fully, and make themselves competent in this branch of the profession, a great saving in flowers would be the result. Messrs. Bracher and Sydenham, silversmiths, Reading, kindly lent a selection of silver bowls and vases for the purpose. During the evening the prizes awarded in the essay competition, "The Carnation and Its Culture," were distributed. The winners were—over twenty-five years of age: 1st, Mr. W. Turnham, Culliam Court Gardens, Henley-on-Thames; 2nd and 3rd, equal, Mr. T. Judd, The Gardens, Hatchgate, Reading, and Mr. J. R. Taylor, Bracknell. Under twenty-five years of age: 1st, Mr. H. Wynn, The Gardens, Cressingham, Reading; 2nd, Mr. W. J. Hicks, The Gardens, Bear Wood; 3rd, Mr. W. G. Wadge, The Gardens, Eaton Hall, Chester. Mr. James Douglas, V.M.H., Edenside, Great Bookham, kindly judged the papers in the senior division, and Mr. Charles Blick, The Warren, Hayes Common, the junior division. The exhibits at this meeting were confined to bunches of flowers, which were to be sent to the inmates of the Royal Berks Hospital after the meeting. The response to the invitation was a large one; over 500 bunches were staged.

Visitors to Kew.

A special count of the visitors to the Royal Botanic Gardens, Kew, was instituted on Whit Monday, and the number that passed through the various gates was given as 65,000.

Croydon and District Mutual Improvement Society.

"Selaginellas" was the subject of a paper read before the members of this society at their rooms, Sunflower Temperance Hotel, on May 17, and in the hands of Mr. A. Osborn, Royal Gardens, Kew, it was most exhaustively and ably dealt with. These highly decorative plants, he said, had been somewhat neglected of late years, because, perhaps, the glowing bright colours found in flowering plants were more attractive to the eye, and created more demand. Some cut blooms of new hybrid Irises and new Tulips were exhibited by Mr. J. Gregory.

Presentation to Mr. John Michie, Balmoral.

An interesting function took place recently in the Royal Athenæum, Aberdeen, when Mr. John Michie, M.V.O., factor at Balmoral to His Majesty the King, was entertained at a cake and wine banquet by a large number of friends, and presented, on behalf of Mrs. Michie and himself, with a solid silver tea service and a silver tray, in commemoration of their silver wedding.

Clianthus Dampieri.

This is a very difficult plant to grow in a satisfactory manner. The seed should be sown singly in small pots in a mixture of equal parts of loam and peat, with half a part of sand. The reason of sowing singly in small pots is that the roots are so impatient of being disturbed that if sown together and potted off afterwards most of them would be likely to die. If you have plenty of seed a good plan is to sow two or three in each pot, and directly the plants are sufficiently advanced to detect the most vigorous, pull out the others and leave the best in sole possession. A genial yet airy greenhouse is the best place for this *Clianthus*, and as soon as the young plants are sufficiently advanced they should be shifted into pots 4½ in or 5 in in diameter. Much the same soil, except that a rather less amount of sand is needed, will suit them well. As the plants grow, they may, if necessary, be shifted into 6 in pots, or they can be flowered in 5 in ones. As the pots get full of roots a little weak liquid manure will be of service. The flowers are so beautiful as to well repay any little extra trouble taken in the cultivation of this *Clianthus*.

Canada and the Fruit Supply.

Abundant crops of Apples in Canada and scarcity here account no doubt for some portion of the great increase in the importations from that colony during the present season, but much of the increase must be attributed to the practical steps taken by the Canadian Government to discover and comply with the requirements of the British market. In 1902 Mr. Mackinnon, an official of the Board of Agriculture at Ottawa, was instructed by the Minister of Agriculture to visit all the chief centres of the fruit trade in Great Britain. He was put in communication with the brokers, the wholesalers, and the retailers, and, so far as was possible, with consumers, in order to ascertain their views on the Canadian export trade in fruit. Confining his attention mainly to Apples, Mr. Mackinnon found that the demand for certain sorts varied with the markets to which they were sent, so that to obtain the best price for them the right sorts should be consigned to the right markets. Other requirements were that the supplies should be regular, of uniform quality, and packed in boxes of the same size under a recognised brand. Speaking of his mission on his return to Canada, he said, "In the Old Country they do not want our poor stuff, for they have lots of poor Apples at home." It is these poor Apples that cause buyers to prefer the better and more evenly graded fruit that comes from oversea. Lord Onslow has taken a step in the right direction by appointing a Departmental Committee on Fruit Culture, but if the inquiries of the committee are to result in recommendations of practical value, it will not be enough to summon selected witnesses to London and examine them there; the committee must take a leaf out of the Colonial book, and ascertain by personal investigation on the spot what are the requirements of the trade.



Mitriostigma axillaris.

This dwarf-growing shrub is usually named *Gardenia citric-dora* in gardens, and for our purpose the name ought to have answered; but one feels that if botanical classification and nomenclature is to make progress, we must be prepared for changes, and be ready to adopt them—provided there are sufficient grounds. *M. axillaris* has smaller flowers than any of the *Gardenias*, but is equally desirable with most of them. The cultural treatment is exactly the same, for this particular species is a native of the warmer parts of Natal.

White Fly on Tomatoes.

One of our Irish correspondents says, "I am dreadfully troubled with white fly on indoor Tomatoes; can you tell me of any simple remedy?" We think the pest can be easily eradicated in the following manner:—Mix up some flowers of sulphur with skim milk to the consistency of a thin paste, and paint all the hot-water pipes in the house with it, closing the house in the evenings when the pipes are nice and warm. If this is done for about a week, and the sulphur allowed to remain on the pipes, not only will all white fly be killed, but as the young ones hatch out from the eggs laid on the plants, they also will succumb.

Luculia gratissima.

This is a warm greenhouse flowering shrub that requires no praise, for all who have seen it admire the soft pink floral clusters, and their exquisite perfume. With sufficient room, this shrub reaches considerable size, and when in flower in September it certainly is one of the gems of the garden. It does well either in large tubs or planted out in a well-drained deep border of fibrous, lumpy loam, leaf mould, or a little peat, and some sand, with potsherds. During its active growing season the syringe ought to be plied at least twice per day, and a moist atmosphere, ranging from 50deg to 65deg Fahr. should be maintained. After flowering, the growths are thinned out, and others are shortened, the plants, too, being rested by being kept slightly drier and cooler.

Green Tomato Pickle.

On October 13, 1903, Mr. J. Gregory, of Canterbury Road, Croydon, placed before the Fruit and Vegetable Committee a jar of green Tomato pickle, which the committee considered to be the best flavoured they had ever had before them. Mr. Gregory has very kindly given us the recipe, viz.:—"Slice 5lb of green Tomatoes into an earthenware jar, sprinkle salt on each layer, and let the whole stand for twelve hours. Then turn it all out into a sieve to drain, afterwards put it into a saucepan with only just sufficient vinegar to cover the Tomato, and add $\frac{1}{2}$ lb of sliced Onions, $\frac{1}{2}$ lb of brown sugar, $\frac{1}{4}$ oz of cloves, $\frac{1}{4}$ oz of long pepper, $\frac{1}{4}$ oz of mustard seed, $\frac{1}{4}$ oz of ginger, 3 cayenne pepper pods. Simmer the whole until tender. Then bottle and cork, and keep in a dry place. It is ready for use as soon as cold."—(R.H.S. Journal.)

Cactus Pelargoniums.

When that singular form of the zonal Pelargonium, Fire Dragon, or the "Cactus Geranium," was introduced a few years ago, with its bright scarlet flowers split up into a number of spiked segments, there were some who predicted that it would enjoy but an ephemeral popularity; but its singular appearance attracted many, and, being of easy culture, it found favour with a large number of cultivators of plants who favour the abnormal in appearance. As it blooms freely, and throws large trusses of bloom at the end of long stems, it has been found useful for cutting purposes, and now Hobbies and Co. (John Green), Dereham, are sending out four new varieties of the same character, viz., Beauty, having semi-double rosy carmine flowers; Gem, single-flowered, rosy pink, and very pretty; King, semi-double, deep rose-coloured; and Queen, semi-double, a combination of deep rose and rosy carmine, and yet quite distinct from either of the foregoing. The ordinary culture given to zonal Pelargoniums answers well in the case of these new forms.—("Agricultural Economist.")

Echeveria retusa.

This is a popular market plant, and has been remarkably well staged by Messrs. Cannell and Sons on more than one occasion in the Drill Hall. For decorative use indoors or in the greenhouse it is as desirable as many other subjects that find space, and its culture is not peculiar. Grow in 5in pots, use a rich loam containing a liberal admixture of charcoal or other gritty material, and grow on in frames or on shelves in a pit during the summer. The orange-red flowers are very bright for the late autumn.

Ornamental Grasses.

The study of grasses as a section of the decorative stock employed by gardeners and floral decorators is rather neglected. We learn of grasses in a haphazard fashion; few of us systematise our consideration of them. It is not our purpose in this note to do more than draw attention, while there is yet time for the sowing of seeds, to some of the many beautiful grasses that can be raised in sunny beds and borders out of doors. We have found a collection of kinds such as those chosen for the engraving, and sown in lines or patches side by side—we have found these a very interesting feature in the garden, as well as a most useful addition. Those who have much floral decoration to do can always find a use for some of these grasses. Not infrequently they re-appear year after year, having shed their seeds, and these having germinated. Practically all of the nurserymen's seed catalogues describe the kinds named on the next page, and we commend a trial to be made.

Floral Decorations.

The increased demand for expensive floral decorations is one of the features of high life in London, says a contemporary. Harry Green, the manager of Robert Green, Ltd., high-class florists, stated some time ago that \$1,000 is quite an ordinary price for West-end aristocrats to spend on the floral embellishment of their rooms on the night of a ball. This is a distinct advancement from the modest adornment which was at one time thought sufficient. Table decoration has reached a fine art. Many baskets and stands are arranged in the shape of swans and butterflies, and made beautiful by the skilful arrangement of choice flowers. Fifty pounds is frequently spent on table decoration by rich leaders of fashion. The wedding of the Duke of Norfolk, our premier duke, and one of the leading Roman Catholic laymen, was a great help to the trade. Some good orders were placed among the West-end florists. The bride's bouquet was composed entirely of rare white orchids, *Odontoglossum crispum*, *Cœlogynes*, and *O. Pescatorei*, with sprays of the daintiest light-hued *Asparagus* foliage, finished off with bows and ends of soft white satin ribbon.

Camellias in the Open Air.

It is somewhat astonishing that comparatively few people who possess gardens are aware how hardy the Camellia is in the open air. That it is hardier than the common Laurel was proved during the very severe frosts that we had ten years ago, when the Laurels were cut down to the ground, but the Camellias were uninjured. There were for many years fine plants 10ft to 12ft high in the society's gardens at Chiswick, which scarcely had a leaf injured during that memorable frost. At Chiswick they grew behind a north wall in bush form, and every year they flowered most profusely. In several other places we have seen Camellias a great success outside, but in every instance the trees have been sheltered from the east, not that they would not stand the cold winds from that quarter, but after a very sharp frost the sun striking on the plants early seems to inflict damage on the foliage. In any other position facing to any other point of the compass they appear to be perfectly happy. One other item may be mentioned, viz., that a windy situation is not favourable at the time of flowering, as the blossoms get damaged and disfigured by knocking against each other. Provided there is a good escape for all surplus water, they do not appear at all fastidious about soil, making themselves at home almost immediately, and holding their own with other shrubs which are not of more vigorous habit. The best time to plant is the middle of May, when everything is favourable for active growth both above and below the surface of the soil. Before planting, the ball of the plant ought to be thoroughly moist, and if dry weather follows a copious supply of water should be given occasionally throughout the first two summers after planting.—(R.H.S. Journal.)



Ornamental Grasses.

1, *Stipa pennata*; 2, *Hordeum jubatum*; 3, *Coix lacryma*; 4, *Chloris barbata*; 5, *Lagurus ovatus*; 6, *Briza maxima*; 7, *Panicum virgatum*; 8, *Briza gracilis*; 9. *Avena* (Oat grass).



Heaviest Bunch of Grapes.

Dear Mr. Editor,—You have omitted the heaviest bunch of Grapes on record in your answer to a correspondent (page 441). A bunch of Raisin de Calabria was exhibited at Edinburgh in 1875 which weighed 26lb 4oz, grown by Mr. Currie, Eskbank, about a gunshot from where I am writing, and I helped to weigh it.—D. THOMSON.

Ants.

There is a slight inaccuracy in one point in the otherwise lucid description of the habits of ants on page 440. The female ant after the honeymoon does not have "her wings roughly torn off by the male," but deliberately bites them off herself. My own eyes are my authority, for I have several times witnessed this strange proceeding, and so may anyone else who is carefully on the watch on the great nuptial day, which is generally a still sunny afternoon at the end of August or beginning of September. On such an occasion, with wonderful unanimity, all ants' nests over a large tract of country send their winged hosts into the air; swallows and other birds which feed on winged insects have an unusual feast, and even starlings may be observed, quite departing from their usual manner of flight, wheeling, and rising, and turning at a good height in the air, in pursuit of the abundant insects.

On reaching the ground the couple part, and the male (who is so absurdly small in comparison as to be quite incapable, I should think, of severing his partner's wings) generally rises again in the air. Not so the female; she looks up no more, but endeavours as quickly as possible to get to the very bottom of the herbage, and if possible find a hole or place of safety, where she may make arrangements for founding a new colony. I have, as I have said, seen her thus nimbly striving to get among the very roots and bottom of matted grass, and, finding her progress hampered by her wings, bend her head round, extend a wing, and almost immediately bite it off, soon afterwards repeating the process on the other wing.

It is a very remarkable incident, as forming a part of the life economy of any living creature; but then in many respects ants are the most noteworthy of all living creatures. Take the whole of living Creation; what most nearly approaches man in—we will not say reason—but in the arrangement and general nature of developed social existence, of civilisation? I ask for no handicap as to size; you may take the elephant, on whose toe-nail the ant would be but a speck, as well as the dog and the ape, and, marvellous as it may seem, the tiny ant may be shown to be advanced far beyond these in intelligent social condition.

Ants have a recognised government under a queen, with ranks and professions. They have soldiers, who do no work, masons, nurses, foragers, and captured slaves for menial occupations. They not only keep cows, in the shape of aphides, which they feed and milk, but do actually tend and harvest crops. It used to be thought that the idea of ants harvesting and storing grain, as alluded to in the Book of Proverbs, was a mistaken one, since the pupæ which they carry about are very much like grains of wheat; but it has been discovered that a certain species of foreign ant does weed a certain space where a particular plant grows and harvests the seed. The accounts in modern works of the intelligence of ants is astonishing. One writer has given an account of mysterious meetings at a certain place, and running to and fro between the members assembled, which he could only interpret as a sort of game or sport! And another, after vainly endeavouring to account for the invariable presence of certain other insects in the nests, which were carefully tended and carried away by the ants, in any change of abode, could only at last come to the conclusion that they were kept as pets!

Knowledge, social order, and civilisation make power; and so it is with ants. As Kipling has shown in his "Jungle Book" that "the little people"—the bees—were absolute masters of the Indian forest wherever they lived; so in West Africa a certain species of ant is the absolute lord of the country. For elephants, gorillas, lions, and man himself there is no alternative but flight when these ants are on the warpath.

To come to the more prosaic boundaries of our own gardens, ants are at times a serious nuisance to a rosarian. I have often known them devour the whole of a fine cherished bud, and even some of the stalk as well, but I do not think they ever begin

the mischief. They will swarm upon a place where a caterpillar has bitten and the sap exudes, and eat the soft, juicy tissue. It is no use by cautious movements to crush the whole of them so that none escape to tell the tale, for in a very short time there will be as many there again; the nest knows all about it. Where a caterpillar has bitten, the bud is already hopelessly damaged, so it does not much matter; but often the ants are attracted by the issue of sap where the two side buds of the coming bloom have been thinned off, and by eating there eventually destroy the bud itself.

Destruction of the nest, by hot water or otherwise, is the only remedy; but it is often difficult to locate, and when found may be in a position where it cannot be destroyed without doing damage; so when ants attack a bud, I leave them alone. I cannot save the Rose, and as it will take them a long time to consume it, a large number of them are at all events kept out of further mischief for the time.—W. R. RAILLEM.

The Double White Arabis.

Though only about five years in commerce, this most excellent spring and summer flowering rock and border plant is already widely known, and, of course, appreciated in all cases. It is most effective and useful for spring bedding, growing quickly and freely, at the same time throwing up quite a profusion of the double white Stock-like spikes. I was therefore gratified to notice the brief notice of it by "J." on page 386, and trust that his note and mine may help towards its wider adoption.—J. T.

Thalictrum aquilegifolium.

This is a really noble plant when seen in a thriving condition. It ought never to be squeezed into a crowded border, as it cannot thus receive the needful amount of root nourishment for its beautiful foliage to attain proper proportions. Apart from its striking and useful leafage, it is the only member of the family with which I am acquainted which produces flowers worthy of consideration from hardy plant lovers. The creamy inflorescence borne on long spikes is handy for cutting, and when gathered in its early stage will last some days in water. Allowed to remain on the plant for some time after opening, it is worse than useless, as it so quickly shatters and causes untidiness in rooms. Comparatively few people know this plant, which is surprising after all that has been written of it, considering also its great beauty in the early part of the season when well cared for.—J.

The Gardeners' Association.

Having followed the correspondence on this question with keen interest, I venture to disagree with "H. P.'s" supposition that "a society on the lines already suggested will not be of much use." Unless some effort is made towards combination the gardener's lot is bound to remain unimproved, and there is no reason to suppose that a principle which has been successfully applied in almost all other trades and professions would fail in the case of those engaged in gardening. With regard to benevolent societies, one cannot help thinking that, however necessary these may be under present conditions, if the gardener's pay was sufficient to enable him to save something for old age, besides supporting a wife and family, he would be far happier and more independent than having to regard himself as an object of charity. An association having this ideal in view surely deserves the support of every intelligent gardener.—PROGRESS.

Children's Subscriptions for the Orphan Fund.

The suggestion made by Mr. Leonard Sutton at the annual festival of the Royal Gardeners' Orphan Fund, and reported on page 437, is worthy of special attention, and for that reason I ask you to publish this little note. One feels that such suggestions as that of Mr. Sutton are seen, only to be forgotten, when they are embedded in a general report. To those who overlooked the remarks altogether, it may be well to explain that the proposition was that each of the children of gardeners should be taught or encouraged by their parents to save or obtain 1s. apiece specially to be sent to Mr. Wynne, secretary of the Gardeners' Orphan Fund, at 30, Wellington Street, Strand, London, as a subscription to what would be the children's section of the Fund. By getting the bairns interested in a cause which exists for the support of their orphan companions, it is thought that the Fund will ensure numerous additional subscribers for later years, when the children subscribers shall have grown up.—J.

Fertilisers for Market Garden Crops.

Concentrated fertilisers are used by market gardeners to an increasing extent, but many growers still rely wholly on town dung. Market gardeners often apply 25 tons of town dung per acre at one time, and sometimes even 50 tons per acre. This is very expensive, for, although the cost varies according to locality and facilities for transit, town dung probably costs, on an average, when all charges are paid, nearly 7s. per ton weight, and in many cases more. Town dung is poor in quality as compared with cake-fed farmyard dung. Its value depends largely on its organic matter, which, in the case of light and sandy soils, helps to retain moisture in dry weather, while in the case of stiff clay soils it prevents baking, and keeps the soil open and spongy.

It is probable, however, that, except on very light and open soils, the merely mechanical or physical effects of town dung might be sufficiently obtained from the use of smaller quantities than are commonly used, while for many crops its use may be economically intermitted. This view is supported by experiments carried on during the last ten years on a variety of vegetables and fruit crops on a weald clay farm in the neighbourhood of Hadlow, near Tonbridge, Kent. From these experiments (fully described in the "Journal of the Board of Agriculture" for March, 1903), it appears that, in the case of most vegetables, town dung alone will not give maximum crops unless very large quantities are used; and that the cost of such heavy dunging is greater than would suffice to produce the same result if less dung were used, supplemented by chemical or concentrated fertilisers. The following general recommendations for the manuring of market garden crops are based mainly on the results of these experiments.

It must be understood that by "dung" is meant throughout, *not* farmyard dung, but ordinary town dung. The dressing of about 12½ tons per acre, frequently mentioned in the following pages, is equivalent to twenty-five small cartloads of town dung in a fresh, loose condition. The recommendations given are for heavy land, or loams of fair or "medium" consistency. On decidedly light and freely draining soils, 2cwt of the total nitrate of soda prescribed may be replaced by about 8cwt rape meal, or 5cwt of fish gnano applied before sowing or planting, at the same time as the phosphates and potash salts.

CAULIFLOWERS AND BROCCOLIS.

A light dressing of town dung (12½ tons per acre) may be recommended, with from 4cwt to 6cwt of superphosphate, 4cwt of kainit, and 4cwt of nitrate of soda per acre; the nitrate of soda being divided into two dressings. A good crop, however, may be grown without dung by using 6cwt of superphosphate, 4cwt of kainit, and 6cwt of nitrate of soda per acre, the last-named being divided into two or three dressings.

For autumn Cabbages and Savoys a dressing may be recommended of 12½ tons of town dung, with 6cwt of superphosphate per acre; 6cwt of nitrate of soda per acre being used as a top-dressing for autumn Cabbages, or 4cwt for Savoys; one half of the nitrate being applied at the time of planting, and the remainder a month or two later. If dung cannot be spared the quantity of nitrate of soda may be increased to 8cwt per acre for autumn Cabbages, or 6cwt per acre for Savoys.

SPRING CABBAGES.—By spring Cabbages is meant the crop planted in autumn and harvested in spring. These are usually dunged, but, as they are not so subject to drought as spring-planted crops, they may be planted without further dung than the residue left in the land from that applied to the previous crop. They should, however, at the time of planting, receive a dressing of 6cwt of superphosphate per acre. Nitrate of soda at the rate of not less than 4cwt per acre may be applied during the spring, divided into two dressings; but the quantity of nitrate may be advantageously increased to 6cwt, and in some seasons to 8cwt per acre.

BRUSSELS SPROUTS, on soils of fair consistency, may be readily and economically grown without dung, provided that concentrated fertilisers are liberally used. A good dressing is 6cwt of superphosphate and 4cwt of kainit per acre, applied just before planting, from 4cwt to 6cwt of nitrate of soda being afterwards used as a top-dressing, divided into two applications a few weeks apart. On very light, sandy soils that suffer easily from drought, however, some dung should also be given.

LETTUCES.

Winter Lettuces may be grown without fresh dung on ground dunged for the preceding crop. Experience indicates that if a grower has used anything like 25 tons of dung per acre for the last crop, whatever it may have been, he may safely plant winter Lettuces on the same land without any further manuring. If, however, he plants winter Lettuces in succession to a crop that has been only moderately dunged, he may give about 4cwt of superphosphate and 2cwt. of nitrate of soda per acre—the latter, of course, being applied during the spring.

Summer Lettuces, however, should not be left without dung lest they may suffer from drought early in the season. A light dressing of dung, with from 4cwt to 6cwt of superphosphate per acre, should be applied before planting, and 2cwt of nitrate of soda per acre applied as a top-dressing. Summer Lettuces grown thus do not appear to need any special application of potash.

CARROTS AND PARSNIPS.

Most market gardeners probably do not dung Carrots or Parsnips, but grow them on land dunged for the preceding crop. If a grower has used as much as 25 tons of dung per acre for the previous crop, it will probably pay best to plant Carrots or Parsnips without further manuring. But following only a moderate quantity of dung for the last crop, he should give Carrots or Parsnips from 4cwt to 6cwt of superphosphate and 1cwt of sulphate of potash per acre, followed by a top-dressing of 2cwt of nitrate of soda per acre after the plant is well up. In the case of Carrots a further dressing of 2cwt of nitrate per acre may in some seasons be given with advantage a month later. Potash salts should on no account be omitted for either Carrots or Parsnips.

SUMMER SPINACH.

A light dressing (12½ tons per acre) of dung is recommended on heavy or medium land, with from 4cwt to 6cwt of superphosphate, and from 4cwt to 6cwt of nitrate of soda per acre—the nitrate applied in dressings of 2cwt per acre each. In a good season, especially on land recently dunged for another crop, a good crop of Spinach can be raised without any fresh dung if the phosphates and nitrate of soda are supplemented by 4cwt of kainit or 1cwt of sulphate of potash per acre; but the combination of dung and concentrated fertilisers is probably safer.

Winter Spinach has been grown successfully after the removal of the summer Spinach, without extra manuring, on heavy land. On light land it might be desirable to give a further top-dressing of 2cwt per acre of nitrate of soda—without, however, repeating the application of dung or superphosphate.

BEETROOTS.

A light dressing of dung is desirable, with from 4cwt to 6cwt of superphosphate and 4cwt of nitrate of soda per acre, 2cwt of the nitrate being applied shortly after the plant is up, and a further 2cwt a month or so later. If no dung is used, 4cwt of kainit or 1cwt of sulphate of potash per acre should be sown before the preparation of the seed bed, and in such case also a third top-dressing of 2cwt of nitrate per acre may be given. On most soils, however, the application of a moderate quantity of dung is valuable for securing a plant if the season should prove dry. Potash appears not to be necessary when dung is used.

RHUBARB.

A light dressing of town dung is recommended (12½ tons per acre), and from 4cwt to 6cwt of superphosphate per acre, with 2cwt of nitrate of soda per acre for small varieties, or 4cwt for large varieties. Sulphate of potash (1cwt per acre) or kainit (4cwt per acre) has proved useful for small varieties, and will possibly benefit the coarser varieties on some soils. Rhubarb grown with a combination of dung and concentrated fertilisers grows more rapidly, and is more tender and less stringy than that grown with dung alone.

POTATOES.

For early Potatoes, on soils so heavy as that of Hadlow 25 tons of dung per acre have consistently proved more economical than a lighter dressing, even when the latter is liberally supplemented by concentrated fertilisers. Early Potatoes are very dependent upon rain, and summer rain has on the average been scarce during the seasons of experiment. For late Potatoes, the best results at Hadlow have been obtained from light dung, phosphates (say 4cwt to 6cwt of superphosphate per acre), 1cwt of sulphate of potash, and 4cwt of nitrate of soda per acre, the nitrate being applied in two dressings. In the presence of dung, potash has produced little effect on the early Potatoes, but much on the late varieties. On light soils 2cwt of the nitrate of soda might be replaced by 2cwt of sulphate of ammonia (applied before planting) for the early varieties, or by 8cwt of rape meal, or 5cwt of fish guano for the late varieties; 2cwt of nitrate of soda per acre being applied as a top-dressing.

SPRING OR SUMMER ONIONS.

With regard to this crop, the experience at Hadlow is too limited to yield definite recommendations, for in some years the plant failed owing to drought or wireworm. A light dressing of dung, supplemented by 4cwt to 6cwt of superphosphate, 1cwt of sulphate of potash (or 4cwt of kainit), and 4cwt of nitrate of soda per acre, may, however, be regarded as a safe dressing. Potash appears to be of vital importance to Onions, and should on no account be omitted.

For Tripoli Onions the results point to the general economy

of a light dressing of dung, with from 4cwt to 6cwt of superphosphate, 1cwt of sulphate of potash (or 4cwt of kainit), and not less than 2cwt of nitrate of soda per acre. In some seasons a further 2cwt of nitrate of soda per acre (4cwt per acre in all) will prove economical.

ASPARAGUS.

Excellent results may be obtained by the use of a light annual dressing of town dung (say 12½ tons per acre), 4cwt to 6cwt of superphosphate, 4cwt of kainit, and from 2cwt to 4cwt of nitrate of soda per acre. Asparagus thus grown has been found to develop more rapidly than when heavy quantities of dung are used without concentrated fertilisers, and the produce has been more tender and succulent, and of better flavour, on the "combination" plots than where dung alone was used.

DWARF FRENCH BEANS.

These may be grown with a light dressing of dung, from 4cwt to 6cwt of superphosphate and 1cwt of sulphate of potash (or 4cwt of kainit) per acre. The use of 2cwt of nitrate of soda per acre has in three seasons given a very substantial advantage, increasing the average weight of Beans gathered from less than 3¼ tons per acre to over 4½ tons, an advantage of nearly 50 per cent.

(To be continued.)



Echeveria retusa. (See page 452.)

Societies.

R.H.S., Scientific Committee, May 17th.

Present: Mr. Michael (in the chair); Messrs. Gordon, Baker, Worsdell, Saunders, Massee and Worsley; Dr. M. C. Cooke (Hon. Sec. pro tem.).

Buttercup fasciated.—Dr. Cooke exhibited a specimen of this peculiarity.

Nerine proliferous.—Mr. Worsdell reported on some specimens sent by Mr. Jackson, as follows:—"It is a case of germination of bulbiferous seeds, as has been described in other Amaryllises. The seed becomes so swollen and fleshy, that a differentiation into endosperm and integuments can scarcely, if at all, be made; while the ovary falls away from around the seeds, leaving them exposed. Imbedded in the seed is a cotyledonary sucker, while at the other end the cotyledonary sheath forms a bulbil from which a new plant is developed."

Fasciated stem with a "multifold" flower of Narcissus.—Mr. A. M. Hawkins sent a specimen, the stem showing a flower with seven times the usual number of parts.

Double Cherry with caterpillar.—Mr. Saunders reported as follows upon specimens received from Miss Verner, Bournemouth:—"The caterpillars infesting the buds of the double Cherry are those of a small moth, one of the Tortrices, I believe *Penthina cynosbatella*, but without rearing the moth I cannot be quite sure, as these little caterpillars are often so much alike that it is impossible to be certain as to which species they belong. Spraying the tree with a solution of paraffin emulsion, 'Abol,' 'Paranaph,' or any insecticide which contains paraffin and softsoap, is the best remedy; even plain water with a little softsoap in it would be useful."

Tulips diseased.—Mr. Massee reported on plants brought by Mr. Holmes, as follows:—"The Tulip bulbs are attacked by *Botrytis vulgaris*. Numerous sclerotia are present, imbedded in the bulb-scales, hence it would not be advisable to again plant those from the same patch of ground that even appear to be sound."

Pears diseased.—Dr. Cooke reported upon some fruit sent by Mr. Rogers, Hexworthy, Launceston. He says:—"I have no doubt that the disease is the 'Black Spot.' *Fusicladium* (see Journal R.H.S., xxviii., 1903, p. 14). It is in an undeveloped state as yet, no hyphæ or sporules being present. It is very common on Pears this year. In early spring it is recommended to spray with a solution of sulphate of iron, and later on with Bordeaux mixture, of a strength not to kill the Pears. It is a common error to use the solutions of the sulphates upon the young and tender foliage of too great a strength."

Manchester Whit Show, May 21st, 23rd, 24th, 25th.

Mr. Weathers and his admirable executive committee deserve praise for the superb exhibition at the Manchester Botanic Garden, brought from various parts of the United Kingdom, and which, more especially on Whit Monday, secured the best attendance for many years. The years this great show has been doing its good work is almost beyond count, but many have gone who were the pioneers; yet it is pleasing to state that there are many who try to follow on in the good work. We missed some notable stands this year, but Messrs. Cripps, and R. Smith and Co., of Worcester, more than compensated for the lack of orchids, and gave us a treat in Japanese Maples and Clematises instead.

Gold medals went to Messrs. R. Smith and Co., Worcester, for a magnificent group of Clematis, Lilacs, Genistas, Guelder Roses, *Spiræa confusa*, Acers, &c.

To Messrs. T. Cripps and Son for a handsome collection of Japanese Maples and shrubs; to Messrs. J. Waterer and Sons, Limited, who had a grand collection of Rhododendrons: Pink Pearl, Gomer Waterer, Cynthia, and Francis B. Hayes, &c.

Messrs. J. Cowan and Co., Limited, Gateacre, had a lovely display of orchids, and gained an award of merit for an unnamed *Odontoglossum crispum* (deep crimson spotted), undoubtedly the finest in the show.

Messrs. Alex. Dickson and Sons, Limited, Newtownards, Co. Down, Ireland, had one of the most gorgeous displays of May-flowering Tulips we have ever seen.

Mr. A. J. A. Bruce, Chorlton-cum-Hardy, had a

wonderful collection of Sarracenias, well arranged and splendidly grown. (Gold medal.)

Messrs. W. Clibran certainly deserved the honour of a gold medal for a large group, the centre consisting of Calla Elliottiana and Pentlandi, Malmaison Carnations and foliage plants as a background, and batches of Lobelia Mrs. Clibran and Aubrietia Dr. Mules in the foreground. Alpines and other good things filled a large table.

Messrs. Dickson and Robinson, Manchester, had a charming stand of numerous Fancy and May-flowering Tulips; Mr. J. Robson had Carnations of the best and some very choice orchids, each of the two above firms receiving the silver medal.

Messrs. R. P. Ker and Sons secured the nurserymen's prize for a group of plants.

For a group of orchids arranged for effect Mr. J. Cypher had of his best. In the background, the splendid Ericas, Bougainvilleas, Clerodendrons, and Genetyllis brought up a grand effect.

Bath and West Agricultural Show, Swansea, May 19 to 23.

On Thursday morning I crossed the Bristol Channel in bright sunshine, and on a rather rolling sea, to see Swansea's great show. It was great to me, because a grand blaze of colour was under a tent, 117ft by 60ft. The daily papers failed to see the show, or their reporters were colour-blind; or I failed to see their notes. Surely so fine a tent of beauty deserves more attention. On the left of the entrance Messrs. John Waterer and Sons showed a large number of clean Rhododendrons.

Messrs. Blackmore and Langdon, of Bath, showed some well-grown samples of Begonias, including some new varieties. Mrs. Harper (new), Mrs. E. W. Smith (new), Marchioness of Bath (white), Right Hon. Joseph Chamberlain (camellia-shaped, fine crimson), Mrs. J. Chamberlain (blush, perfectly upright habit, large flowers), Mrs. Box (rosy salmon), Countess Cromer (pure white, very lovely), Sophie (large pale yellow), and Flambeau, a very showy thing indeed. This firm also showed very fine Carnations, including Alma, which received award of merit R.H.S., May 19, 1903. Many other fine things were on this stage. This firm grows 3,000 Polyanthus plants.

I noticed Messrs. Geo. Cooling and Sons' (Bath) splendid collection. Nellie Moser Clematis was perfect; Enchantress (double white), and Gloire St. Julian, &c., were very much admired, and they had abundance of Roses and Tulips.

Messrs. Cutbush and Son, of Highgate, occupied the top end of the tent with a blaze of colour, most delightful to behold. What Carnations!—Sir Hector Macdonald, Duchess of Westminster, and others.

Messrs. W. Treseder, of Cardiff, staged a fine large basket of orchids and choice stove flowers, also many valuable decorative flowers. Then came Messrs. R. Veitch and Son, of Exeter, who had in their fine collection Embotrium coccineum, Solanum crispum, and alpines. Messrs. H. and W. Evans, Hardy Plant Nursery, Llanishen, near Cardiff, showed also fine rock plants, and clean, well-grown stock they were.

The floral designs of Messrs. E. Pearson and Co., of Swansea, were very good indeed; and Mr. H. Farrant's new Tomato, Beauty of Wales, was well spoken of. The Pansy blooms of Mr. F. Hooper, of Bath, pleased the ladies immensely.

Messrs. T. Cripps and Son, Tunbridge Wells, and Messrs. Paul and Son, of Cheshunt, had groups which came in for close inspection. Messrs. Paul had Roses Lady Roberts (T.), Georges Schwartz (T., yellow), New Century (rugosa), Paul's Early Blush.

A knapsack sprayer was exhibited by Messrs. Parsons and Co., of Swansea and Bristol. It is called "Knapsack National, Btt. S.C.D.G." The cover on top fits like a well-made jar cover, with a spring in centre, and so prevents any liquid spilling and running down the back of the operator. The price is 50s., and it is well worth it, as it is, of course, made of copper.

In the grounds Messrs. John Weech and Sons, of Bristol, showed many glass houses and frames, and also boilers of various makes.—X.

Ipswich Mutual Improvement.

At the last meeting of the above, held on May 5th, with Mr. T. T. Whittell, Pinetoft Gardens, in the chair, Mr. J. A. Adcock, Felixstowe Road Nursery, opened a discussion upon the important subject of "Salads." The principal vegetables required for the salad bowl at various periods of the year were dealt with in a chatty manner by Mr. Adcock, who indicated many little points of interest in their cultivation, and likewise gave some valuable hints to exhibitors of salads. The discussion was well sustained by several members, including Messrs. Morgan, Scott, Geen, A. Creek, Barker, E. Creek, Garnham, and others. Mr. Adcock was also responsible for the exhibits upon the table, which included a nice basket of salad, a very fine basket of Royal Sovereign Strawberries, obtained from plants lifted from the open ground and potted in February, and also a plant of Spiraea japonica Mr. Gladstone.—E. C.

Paignton (Devon) Gardeners': Question Night.

Mr. J. Crathorn presided over the monthly meeting of the gardeners' association, which was devoted to questions, the chairman remarking that this was an experiment on the part of the committee to give all members an opportunity of benefiting from the association. "Which is the best way to prepare a bed for Strawberries, and how to treat them for two years after?" was a question which Mr. Hall answered by recommending a piece of ground where Celery had been grown, to put in some Potatoes, and after they were dug up to trench the ground two spits deep; but if the ground had been trenched before he would not trench the bottom spit to the top, but put a good layer of manure on it and another spit on top. If, however, it had been trenched before, he would bring the second to the top and the bottom up also. A good



Luculia gratissima. (See page 452.)

many advised getting plants which had not borne fruit, and after they had grown a second crop he would throw them away. Mr. Gard said he used them three years. People made a mistake in digging the ground too deep. He advised breaking up the surface and giving it a lotion. Mr. Jefferies agreed with the method advocated, which he had found very successful. He advised ammonia sprinkled round, which forced the plants and produced a fine crop. With regard to soot for destroying slugs and snails, Mr. Sanders did not agree with it as a remedy, agreeing with Mr. Gard that a zinc solution was much preferable.

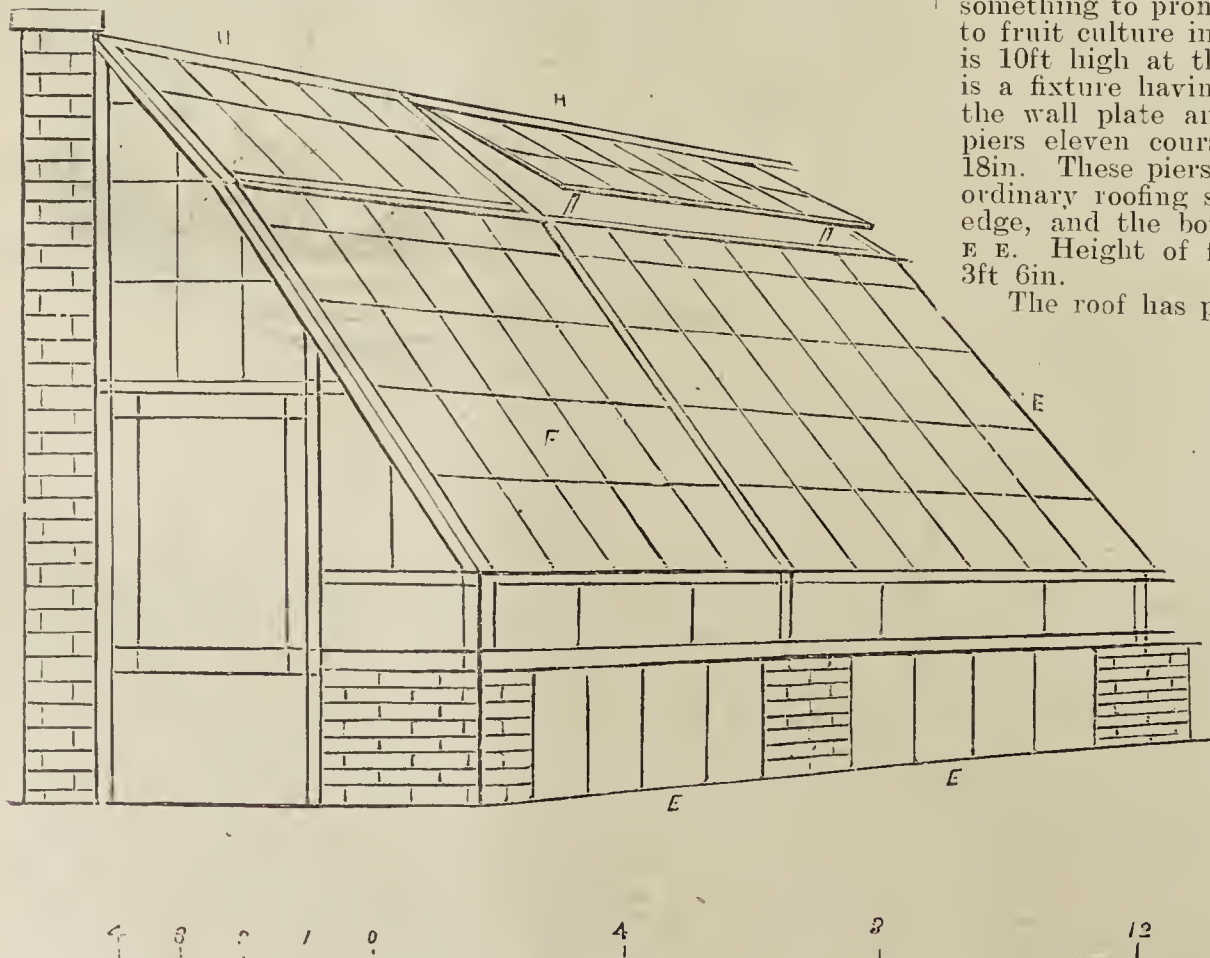
The best method for raising Primulas and Cinerarias, and soil for potting, was discussed. Mr. Rowland said the best soil was very fine loam with a little fine sand. Sow the seed right on top, and a very little of the soil on top, with a pane of glass over, and they could raise as many as they liked. "What is the cause of the club-root in the Cucumbers?" Mr. Sanders said it was attributed by some people to using stale water that had been lying in a dirty tank, and a small insect getting into the root and spoiling the Cucumber; also by filling up pits with manure. He advised not

using the hotbed manure for Cucumbers and Melons. If the roots were infested, the advice of experts was to burn the whole lot. Mr. Dawe said since the last meeting he had used weed-killer and sugar for killing ants, and had found it very successful. The chairman mentioned that at the next summer show it was probable that they would have an exhibition by the Devon Bee Association, which he hoped would be an additional attraction to the show.

Barnsley Paxton :—Seeds.

On Tuesday, May 17th, Mr. H. Hindson, of Peel Street, Barnsley, read a paper on "Seeds." For kitchen garden seeds canvas bags, varying in thickness and closeness of texture usually give satisfaction, though the greatest care must be taken to make sure the bags are perfectly clean, and free from all insect life and fungi, and this applies to boxes, paper bags, or whatever is used for storing. For finer seeds, a good brown paper bag is hard to beat. The place in which seeds are stored should be chosen where it is possible to keep a fairly even temperature. A cool temperature is best for not causing premature germination, although, of course, no frost must penetrate, so that the temperature should not be lower than 40deg Fahrenheit, and it is well to bear in mind that it always pays the best to nurse seeds well.

When seeds are sown, the time of germination of one seed and another is widely different. All hard-shelled seeds are the most difficult to raise, or other protections that render them irregular in sprouting; some, perfectly fresh and good, remain underground for a longer period than one would like. Examples of these may be found in Primula, Cyclamen, and Auricula, which, if sown fresh from the plant, grow often in a few weeks. If, however, kept dry in packets, some will sprout readily, while a proportion may appear in a year or more, so that it is best to sow these seeds in pots, and prick off the seedlings which are large enough, without disturbing the rest of the soil, which will give the late-growing seeds a chance. Soaking for 24 hours in tepid water before sowing hastens their sprouting. The seed of the Anemone will often lie from six to twelve months before sprouting. Palm seeds require a good heat to get them up; the stones of the Date Palm sometimes take from six to twelve months, and others often as long. Cannas are called Indian-shot, as their seeds resemble bullets in everything but heaviness; to make them sprout, file through the covering in one place. Roses, Hawthorns, and Hollies are easily raised, though very slowly, as a year elapses before they pierce the ground. Where a quantity is required, the seed should not be sown out of doors in drills, but buried altogether in a mass mixed with sand; there they are less liable to be eaten by mice, and, further, the space taken up is less. After remaining twelve months, the seed should be taken up and sown in the usual way, and in a few weeks they will sprout. Most trees may be grown from seed, but it is preferable where vermin abound to save over the seed until the spring, and then sow. To preserve them, mix with earth.



A Lean-to Plant House.

Royal Meteorological.

The usual monthly meeting was held on Wednesday afternoon, the 18th inst., at the society's rooms, 70, Victoria Street, Westminster, Capt. D. Wilson Barker, F.R.S.E., president, in the chair. The Hon. F. A. Rollo Russell read a paper on "The Principal Causes of Rain," in which he stated that the chief causes of rain are only four, but several of these are often in co-operation. These causes may be briefly described as follows: (1) The forced ascent of moist air by the slopes of mountains, (2) a mass of air invading rather suddenly another mass moving from an opposite direction, and maintaining its flow below the opposing current, which it displaces, (3) the ascent of more or less moist air through heavier and colder air to a height where condensation of vapour takes place, increased radiation of heat towards space, and often electrical developments producing further condensation, increase of temperature, and renewed ascent, with the same results; (4) the mixture of currents of air from different directions.

A paper by Mr. W. C. Nash, on "The Observations of Rainfall at the Royal Observatory, Greenwich, in the years 1815 to 1903," was also read. The author has made a full inquiry into the circumstances relating to the early history of the register, and has drawn up an authoritative table of rainfall for the long period of eighty-nine years. The average annual rainfall is 24.36in, and the number of rainy days 157. The greatest fall was 35.54in in 1903, and the least fall 16.38in in 1858. During the five months January to May, no monthly fall exceeding 4.57in was recorded, but in the remaining seven months there were twenty-four falls exceeding 5in. Light falls of rain are spread principally through the nine months January to September, with a decided preponderance in spring.

A Lean-to House.

Some twelve months ago I had to build a glass house for the protection of Peach trees trained to a wall 130ft long and 10ft high. After due consideration I decided to build it in the form of a lean-to, the end of which is shown in the figure, and by the exercise of all possible care in procuring the wood from a firm having the advantage of saws and moulding tools worked by steam, and all other materials in the most advantageous manner I could discover, and by strict economy of labour, I was able to erect and finish my building at a cost of about 11s. per foot run, the back wall and coping being of course excluded, that being already done.

I do not suppose that anyone not thoroughly proficient in the technicalities of building would be able to build so cheaply, for there must be no blundering, no waste of time or materials; yet as a knowledge of details is undoubtedly useful, I send some of the most important for publication, in hopes of doing something to promote the application of simple glass structures to fruit culture in gardens where such do not exist. The house is 10ft high at the back, and 6ft wide at bottom; the front is a fixture having no ventilators, but with sashbars let into the wall plate and the eave. The wall plate rests on brick piers eleven courses high, including the footing, and 9in by 18in. These piers are 3ft 9in apart, the spaces between having ordinary roofing slates, size 20in by 10in, set on end edge to edge, and the bottom bedded in the soil of the border as at F E. Height of front from ground line to top of eave plate 3ft 6in.

The roof has panels at F E, one 5ft wide, the other 6ft, by 7ft 6in long, each having four sashbars, one rafter, and the rows of glass, four squares and a half in each row; size of squares 20in by 12in; quality of glass 21oz seconds. The upper edge of the half squares to go into a groove in the hip bar. The ventilators are fixed by hinges along the top of the roof at H, and are opened and closed by an iron apparatus fastened to the hip bar; size of each ventilator, 5ft by 3ft, and glazed as shown.

A shelf along the front of the house is useful for Strawberries in pots, of which a goodly supply was picked some three weeks before the outdoor fruit was ripe, and also for plants and Figs in pots. The roofing slates along the front present a sufficiently neat appearance, and do not interfere with the roots running under them into an outer border. The bricks used were good hard clamp bricks, costing 2s. 3d. per hundred. Each pier took fifty-six bricks.

Objection may be taken to the ventilators on the score of size; but knowing as I do the importance of thorough ventila-

tion, I cannot agree to any reduction of size, and have not only made provision to open them very wide, but have used sliding hinges so that the ventilators may be taken off entirely if necessary. This also affords facility for repairs or painting. The house is unheated, but a 4in flow and return pipe connected with a powerful boiler would add materially to its value. This, however, need not be dwelt upon, for the house is so useful without it as in a single season to very well repay the expense of building. E. L.

[Heated as suggested the house would be admirably adapted for Cucumbers; and as wide again or more would make an excellent vinery. In its present form unheated it would grow Tomatoes well in summer, very strong plants being ready for planting at the end of May or early in June. We remember seeing a splendid crop of Tomatoes on plants inserted at intervals along the front of the house, and a grand crop of Peaches on trees trained to the wall. The value of the fruit in the house was equal to the entire cost of the structure. It is not a tenant's fixture, nor was it so intended, as the bricks are embedded in the soil. With a framework in front stontly attached to supporting pillars resting on slates, and strong iron brackets in the wall in which the supporting beam could rest and be lifted out if needed, the door frame screwed, not nailed, into wooden studs in the wall, and screws used generally instead of nails, such a house might easily be made portable. If heated, a conical boiler would be best in a shed at the back, not set in brickwork, but covered with a cement-like composition for conserving the heat. It may be added that where the requisite materials cannot be readily obtained, and a competent person is not at hand to put the house together, it may be cheaper to employ a skilled builder, and the work will certainly be done more efficiently.]

Outdoor Tomato Culture.

Many things have contributed towards the extended culture of the Tomato outdoors during recent years, including a few favourable seasons, increased popularity of the fruits for culinary and salad purposes, and the introduction of suitable varieties for outdoor culture. In short, the Tomato is no longer a luxury, but a garden commodity, grown by almost everyone with varying degrees of success. I remember the time when Tomatoes were almost exclusively grown under glass, but now things are different, and capital results are obtained by those who will not be denied, though they have no glass accommodation for the culture of the plants. I am aware also, from personal experience, that while some do well, others only partially succeed or entirely fail, not always because their conditions are unfavourable, but owing to the fact that they do not grasp the important principles necessary to success, or if they do, they fail to put the principles into practice.

We are now on the threshold, so to speak, of the outdoor Tomato season. Thousands of plants are being raised in anticipation of the crop, so the moment is opportune for a few hints on the way they should be treated. The aim of every grower should be to get early fruits. Ripe Tomatoes outdoors at the end of July and early in August are acceptable and valuable, but how many gardens are there in which the fruits do not begin to change colour till September, or perhaps they never ripen on the plants at all. What makes the difference? In a few words it is the situation, the character of the plants put out, the after treatment they receive, and the varieties grown; and these important points I will deal with rotatively.

To begin with, the Tomato is a sun-loving plant, and warmth is conducive to its welfare. Situation is more important than soil, and there can be no better place for growing the plants than against a south wall. Here the best results are usually obtained, but I am reminded that many would-be Tomato growers are not in possession of such facilities. There need be no hesitation, however, in planting against a dividing fence that catches the sunshine, or failing that, I would suggest a warm, open position in the garden, supporting the growths with stout stakes in the same way as Dahlias are treated.

The next thing is the type of plant to put out, and a great deal hinges on this as to when fruit will be ready for picking. We must remember that Tomatoes cannot be planted outdoors before the end of May or early the following month, and the season they have for completing growth and bearing the crop is necessarily short, hence the necessity for a good start. Perhaps only a title of those who grow Tomatoes outdoors have the facilities for raising their own plants, and they have to depend on other sources, by which means they are often handicapped at the outset. By way of illustration let me draw a comparison. Plants are raised from seeds sown under glass in March, and duly transferred to small pots, say 4in. In these they remain till they are planted outdoors, but in the meantime the receptacle has become crowded with roots, the growth is stunted,

and the stem weakly. The plant is checked in infancy, and when put out some weeks must elapse before it can recover itself and commence to grow. Such specimens will not produce early fruit, and should be avoided.

Consider, on the other hand, a plant raised in the same way, but when the small pot is full of roots it is removed to a larger one, say 6in, and grown close to the glass in a medium temperature before being hardened off. Such a specimen is sturdy, strong, and growing when put out, though having suffered no check, and flower trusses will soon appear on the stem. This is the type of plant to obtain. It may cost more, but it will be the cheapest in the end. Those who raise their own plants will also do well to consider the significance of the above remarks.

Now, a word as to general treatment. No one need be deterred from growing Tomatoes because they do not possess a border in which to plant them, as they do equally well in receptacles where the roots are confined. Excellent crops are obtained in backyards even, the plants being grown in empty boxes or lard pails. The best crop of outdoor Tomatoes I have seen were grown in the latter receptacles, and trained up the south wall of a cottage. I do not advise pots for outdoors, unless they can be plunged in the ground up to the rims, as the plants are apt to suffer for want of water in dry weather. The soil should be good, but not overrich, and nothing is better than a mixture composed of three parts fibrous loam, one part leaf mould, and a little coarse sand. The receptacles should be well drained, and filled not more than three parts full with the compost, as this will allow for later top-dressings, which are highly beneficial when the boxes or tubs are filled with roots. The soil should be made firm, and be pressed well round the balls when the Tomatoes are planted.

When planted in open borders the existing soil, if fairly good, will suit Tomatoes, but if very light or poor, it is advisable to spread a dressing of loam on the surface, and dig it in. Too rich soil is conducive to rank growth, but, on the other hand, the vigour of the plants must not be retarded by poverty. A good deal has been written about the feeding of Tomatoes, but, as a rule, no stimulants are required until the early flowers are set and the fruit is swelling. At this stage and onwards diluted liquid manure may be given every other time the plants are watered, and a mulching of half-decayed manure over the roots will help to conserve the moisture. Artificially may be also used for forming liquid manure, and also for dusting over the roots prior to watering.

When Tomatoes are grown in tubs or pails, the latter should be placed close together, and they will accommodate one plant each; when against a wall, 2ft is a good distance to allow between them, and when out in the open I would suggest a yard apart, with 4ft between the rows, and in the latter case a strong stake should be fixed in the ground for each plant before it is put out. In too many cases Tomatoes suffer through overcrowding of the shoots. Superfluous growths remain unremoved, the flowers are hidden among the leaves, and for the want of the sunshine which cannot reach them, they fall off instead of setting and forming fruit. For this reason I advocate the single stem system of training, which consists of keeping each plant to one stem by pinching off the side growths as they appear at the axils of the leaves. The pinching should be done regularly, as the plants are of quick growth and suffer from the consequences when side shoots are allowed to extend freely, and are then removed wholesale.

Towards the end of the season the plants may be partly denuded of their leaves in order to expose the fruit as much as possible. When the latter is partially coloured, it may be picked off and placed in a window where the increased warmth will improve the flavour. In cold, sunless seasons the fruits are apt to be affected by what is called the "black spot" disease—(*Cladosporium fulvum*). A soft spot like a bruise appears on the fruit, which quickly extends and causes decay. A close look-out should be kept for this trouble, and all affected specimens be picked off and burnt.

Varieties of Tomatoes have appeared in such numbers of recent years that their name is legion, and selection becomes difficult. Experience has taught me, however, that good, naturally early varieties are best for outdoors, and a favourite with me is Sutton's Earliest of All. It is a most reliable Tomato, and a heavy cropper. Carter's Outdoor is also excellent, and by the way it fruits in the open, it is quite true to its name. I can also speak well of Sutton's Al, Holmes's Supreme, Frogmore Selected. All the above are red Tomatoes, and, in my opinion, they are better than the yellow varieties for outdoor culture.

In conclusion, let me add that the unfavourable conditions of last summer taught us how much the weather has to do with the success of Tomato culture in the open. Warm, sunny seasons are naturally conducive to the best results, but unless the grower does his part by following correct principles of culture, he cannot expect to get Tomatoes at all in a poor season, or the best returns for his trouble and outlay even when natural conditions are favourable.—G. H. H.

SPRING ONIONS.—It will be advisable to give a little attention to these frequently in order to ward off the attacks of the fly. A little soot scattered along the rows is an excellent preventive if done frequently. Gas lime is also a preventive, but care is necessary in its use.

SPINACH.—More round leaf Spinach should now be sown. This may be sown on the Celery ridges. The drills should be filled with water, and allowed to remain for half an hour before the seed is sown; scatter the seed thinly.

COLEWORTS.—The seed of these may now be sown. Treat the seed drill as for Spinach.

CAPSICUMS.—These may now be planted out in a warm, sheltered border. A little shelter may be afforded at night until they become warmer. Ample water should be given.—A. T., Cirencester.

British Birds.

(Concluded from page 424).

Aquatic and Semi-aquatic.

THE COOT (*Fulica atra*) is usually found in large sheets of water, and feeds upon water insects and their larvæ, slugs and other small mollusca, grasshoppers, &c., seeds, grasses, and watercresses. Its depredations in Watercress beds, notwithstanding its usefulness in destroying pests, render its presence there "few and far between," as the cultivator does not tolerate it.

THE WATER-HEN (*Gallinula chloropus*) is rather common along the reedy banks of rivers and ponds, and is a very interesting creature. The newly-hatched young look like round tufts of black down, swimming and diving well, and often fall a prey to ever-hungry pike. The food of the waterhen or moorhen is very similar to that of the coot.

THE LITTLE GREBE OR DABCHICK (*Podiceps fluviatilis* or *minor*) is a splendid diver. It feeds upon water insects and their larvæ, also small fish.

THE COMMON GULL (*Larus canus*) is particularly useful on land near the sea, scouring large tracts of both grass and arable land at times, and devouring almost everything in the shape of mollusca, crustacea, insects, or larvæ, mice and voles being dainties, and swallowed head foremost. I have had several in pleasure grounds and gardens, where they are very useful by destroying slugs and grubs, mice and voles; but some I had took to pulling vegetables and other crops to pieces, and had to be discarded. The gull will make itself at home with poultry, and eat Peas, Beans, Wheat &c., as well as any vegetable or animal scraps. It, of course, will devour any fish it can catch, also frogs, &c.

THE MALLARD OR WILD DUCK (*Anas localis* or *boschas*) frequents large ponds or lakes, and feeds upon tadpoles, lizards, fry of fish, crustacea, mollusca, and insects and larvæ, also vegetation, corn, and seeds. In the evening and morning it scours the land around for slugs and other pests, keeping lawns in excellent order as regards freedom from such gentry. This and other ducks are excellent freers of the surface weeds and conservæ that infest ponds, particularly duckweed.

THE TEAL (*Querquedula Crecca*), the smallest of our ducks, feeds chiefly at night, and does much good on land surrounding ponds, as in the ponds, its food being similar to the wild duck.

THE HERON (*Ardea cinerea*) is a great ornament to artificial water as well as natural, and feeds mainly upon fish, yet destroys lizards, frogs, snakes, rats, mice, water and other voles, beetles, and various insects.

THE KINGFISHER (*Alcedo Ipsida*), as beautiful as rare, has not only a strong appetite for freshwater fish, but it eats mollusca, crustacea, leeches, and various water insects.

THE DIPPER (*Cinclus aquaticus* or *Hydrorata Cinclus*), is one of the most interesting of our native birds, and found principally in hilly places where there are clear and rapid streams, such as in Derbyshire and Yorkshire. It lives principally upon aquatic insects, and though charged with eating "fry" of fish upon very uncertain evidence, is a great ornament to running, rocky streams.

THE CORNCRAKE (*Crex pratensis* or *Ortygometra crex*) arrives in England at the beginning of April, and departs in September or October. During the early part of the summer months its harsh cry may be heard in almost every meadow, but after breeding time the cry ceases. It feeds on worms, mollusca (slugs), crustacea (woodlice), myriopoda (millipedes), and insects; also, when opportunity offers, on corn.

Several other birds are passed over as being of little interest to cultivators, who, from the foregoing, may form their several deductions on the merits or demerits of the birds more or less common as affecting their respective cultures, for usefulness or otherwise.—G. ABBEY.

Miscellaneous Notes.

W. Paul and Son's New Roses.

The new Rose catalogue of Messrs. W. Paul and Son, Waltham Cross, describes Countess Cairns, a cerise carmine H.T. Rose; Earl of Warwick, an H.T. of a soft salmon pink with vermilion centre; Irene (H.T.) silvery white, faintly touched with pink; and Mrs. Alfred Byass, a crimson decorative Tea. Irene is figured in a coloured plate. All the new Roses from all sources, of 1902 and 1903, are included in the catalogue.

Vermorel's Fruit Tree Sprayer, 1904.

The vendors of this new sprayer describe it as powerful and handy. "It can be used either with a single lance, or with two lances to operate in different directions at the same time. The reservoir, which is of stout copper, holds about 20 gallons, and is fitted with a powerful copper pump. The machine is sent out complete with two 15 feet lengths of india-rubber tubing, with unions; two 3 feet 3 inches brass lances, with taps and Vermorel improved nozzles; two straight jets for simple washing, at the price £9 5s." The sole agents for Great Britain, Ireland, and the Colonies are Messrs. Charles Clark & Co., 20, Great St. Helens, London, E.C.



English Bros., Ltd., Timber Merchants and Creosoters.

We have received a catalogue from this firm, which explains the extent and variety of their business; and as it contains illustrations of how creosoting is accomplished, and of various wooden structures as farm sheds, fruit stores, gates, fencing, &c., it will be found useful for reference by many of our readers. Their head office is at Wisbech.

"The business of English Brothers and their predecessors" (they state) "has been established for upwards of a century as importers of timber and slates. During that time the timber trade has seen many changes and great development. An immense impetus was given to the trade by the railways, formerly the wood being distributed about the country by means of roads and canals only. In the earlier days of our business there was a duty payable on all timber imported, necessitating large lock-up or bonding yards and numerous customs officials, who superintended the deliveries, fixed the hours for working, &c., and generally impeded business. In those days steam shipping was unknown, and the trade was by small sailing craft, in some cases carrying mixed cargo of grain and deckload of wood. Now the small sailing ship has nearly disappeared, and steamships of large tonnage have replaced them. The larger sailing ships are still employed in the Canadian and pitch Pine trades, and from British Columbia. This Columbian or Oregon Pine is of recent introduction in this country, it is sawn from very large trees, yielding fine dimensions, entirely free from sap or heart shakes, quite unobtainable in European woods." Large stock of well-matured timber of the following kinds are always on hand:—Danzig, Memel, and Riga, Pitch Pine, Oregon or British Columbian Pine, Kauri Pine from New Zealand, Quebec Pine and Canadian Spruce; Californian Redwood; American Whitewood; Maple, &c.; Stettin and Danzig Oak, Wainscot Oak from Riga and the Adriatic, Oak staves, Mahogany, Teak, Birch, and other hardwoods. Deals, battens, and boards from Archangel, St. Petersburg, Norwegian and Swedish ports, Finland, Canada, British Columbia, New Zealand, America, and Australia, in all qualities and sizes.

THE BEE-KEEPER.

Supering.

Bees have an inherent disposition to carry their stores upwards, and to confine the brood-rearing to the lower portion of the hive, and by enlarging a hive by placing a super above the brood chamber, and preserving a free communication throughout the whole tier, they will be induced to fill it with honey. This enables the bee-keeper to remove his surplus free from impurities, and without disturbing the brood nest or destroying the lives of the bees. The giving of these surplus boxes requires considerable discretion, as there are so many conditions to be taken into consideration in practising it. For instance, if a colony be supered too late the swarming fever will be engendered, and if supered too early in the season, or before the brood nest is well crowded, the bees will be too weak in numbers to raise the temperature of the additional space sufficiently for the secretion of wax and building of combs.

From this it may easily be perceived what mischief may be done, as the addition of supers exercises a great influence upon the temperature of a hive, which in turn affects the quantity of honey gathered, besides which, diminution of warmth in the hive will retard the rapid production of brood. In the former case, the extra room, although it may be taken possession of, is only a lounging place for the excess population until a favourable opportunity arises for the issue of a swarm.

The fact that no fixed time can be given for supering is evident, but colonies carefully attended to should, as a rule, be ready for them at the latest by the middle of June, when the apiarist must use his own discretion as to the strength of stocks and atmospheric conditions. Prior to supering a hive, first ascertain that the brood chamber is filled with bees, eggs, and brood in all stages of development, the weather warm and settled, and the ingathering of honey from the fields in excess of the daily consumption of the inhabitants, which is evidenced by the elongation of the cells next to the top bar of the frame.

When a stock is not in this condition when the honey flow is commencing, some preparation is necessary. Combs containing a little sealed brood should be exchanged for combs full of brood from other hives able to spare them, and any combs partly filled with honey should be bruised, and if placed in the centre of the hive it renders this system more effective, as they are immediately filled with eggs. Additional room should be given a little in advance of the requirements of the bees rather than too late; at the same time, it must be gradual, and for this purpose shallow supers have been found the best, which, at the commencement of the honey flow, are better filled with sheets of foundation, as the bees will build combs at this time at much less expense than when the honey flow is at its height. One drawn-out bar in the centre will entice them to commence work in the super.

In working for extracted honey a little extra room is not a disadvantage, as more comb-surface is required to ripen the newly gathered nectar, and it also minimises the swarming desire. As soon as the first super is two-thirds filled and sealing commences, a second should be given, and so continued throughout the season. In very hot weather ventilation is also necessary. Slightly raising the roof and the hive front by half-inch wedges is very effectual.

When working for comb honey the super space should be contracted towards the end of the season by gradually removing the completed sections, and then closing up with a dummy.

Compelling the bees to crowd in the remaining sections in this manner assists materially in the rapid ripening of the honey, and the quick and clean capping, as in many cases the honey is carried up from the brood nest and stored in the sections, which is preferable to having too many on the hive, some of which are left incomplete. The main object is to concentrate the bees and heat.

The greater part of the comb building is done when the whole population is in the hive at night, as the heat necessary for the secretion and working of wax in the combs is easily maintained then. The importance of warm quilts to cover supers, and closely secure its retention, will therefore readily be seen.—E. E., Sandbach.

Bee Moth.

This is a very troublesome pest, and is often the result of neglect on the part of the apiarist himself. The grubs of this moth are rarely found in a strong colony. Many bee-keepers fail to remove the collection of cappings to be found on the floor board of every hive. Here the wax moth will lay her eggs, and the worms creep up the sides and begin their work of destruction on the combs. Make your hives clean and sanitary early. The bees love cleanliness, and will enjoy better

health if all rubbish and filth is removed. If a hive be infested, examine the frames, and cut out all webs and worms, taking great care to kill the grubs. It is amusing to watch Italians make short work of these pests. If a badly infested frame be placed in the centre of a colony of Italians, you will soon see the grubs dragged out on to the alighting board. When surplus combs for extracting are stored for the winter, always place them about 2½ in apart, and remove all hives out of the apiary where bees have perished, and never throw about bits of comb near the hives.

Handling Bees.

The number of people who are scared when they hear the pleasing hum of the bee is legion. It arises from ignorance. I can well remember the time when I first had a home of my own and commenced bee-keeping. My dear mother heard of it and was horrified. I soon received a letter imploring me to give up, or I would be stung to death. An enclosed newspaper cutting related how a carter had been stung to death while taking some bees to the heather.

Nearly all the deaths that occur arise from ignorance. Men do not know when a bee is angry or harmless, and consequently treat all alike. We require fearlessness, gentleness, a leisurely movement whilst handling bees, and plenty of common sense. Some of our most expert bee-keepers can manage without smoke, but they always have the smoker lighted ready for an emergency. Perhaps it would be best for most of your readers to give a puff of smoke invariably at the entrance about two minutes before making an examination of the hives.

Make an examination always when the bees are busy in the fields, i.e. about noon, and stand behind the hive. If one stands in front, we are obstructing the bees, and they remind us of this by using their powerful and painful stings. Never examine hives in the summer when the bees have much spare time, for bees are like human beings—they do more damage during hours of idleness than when they are very busy.

Carelessness in leaving bits of comb containing honey, causing robbing, will set a whole apiary so that it is only possible for the most skilful of bee-keepers to do anything at all with them. Mind, you may often leave whole combs of honey about when there is a good yield of nectar, and the bees seem to scorn the idea of touching it. I have known men to do their extracting not far from hives, and no harm has come of it, but, after all, it is dangerous amusement, and may cost you dearly if you try the experiment. As you lift the quilts puff in a little, very little, smoke to drive down the bees, for these insects often resent a powerful blast. In fact, always use as little smoke as possible if you desire to obtain the best results.

Bees and Fruit.

Our gardening friends are very ready in too many cases to blame bees for the damage done to fruit. After closely watching these insects, I have come to the conclusion that they are not the real culprits, but birds and wasps are. Robins are very fond of fruit, and puncture it in the first instance. The bees, finding some sweets to hand, very soon begin to visit the damaged fruits, and as they are so often seen there, bear the blame of the damage. The birds are so quick in their movements, and their visits to the fruit so brief, that, unless they are closely watched, they escape detection and blame also. Perhaps gardeners are eager to blame the bees because of their fear of the insects. Very ripe and bruised fruit is often thickly covered with bees if an apiary be near. Still this is no reason why the bees should take the blame of the cause of the damage.

Mouldy Combs.

During the spring of 1903 a lady bee-keeper called me in to inspect some combs that had been stored in a damp place. They had been taken from a hive where the bees had died, as many did last year. She had been picking out the dead bees, trying to dust off the mouldy particles, and had made a woeful job of it, and was on the point of burning them all, when she saw me pass. I simply told her to leave it all to the bees a little later. She took the advice, stored them in a drier place, and when the weather was more favourable she placed them one at a time in the centre of a strong colony. By the evening all the comb was spotlessly clean, all dead bees removed, all breakages made good, and in some instances there were eggs in the centre cells.—HYBLA.

FRUIT AND VEGETABLES.—English vegetables are gradually taking the place of foreign, and are now in large supply. London reports, "Cornish Cabbages are arriving with better hearts," and "Asparagus is in full season from Evesham and elsewhere." Potatoes show a fall generally, owing to heavy arrivals from abroad. English Gooseberries and French Cherries are arriving in large quantities, but the London reporter states that the latter are not an "active sale."



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

AMMONIACAL CARBONATE OF COPPER SOLUTION (F. M. M.).—In our reply last week, page 441, carbonate of ammonia is given by inadvertence in the second formula instead of carbonate of copper, the latter being the proper article.

MELON PLANT FOR EXAMINATION (G. G. C.).—The plant was found affected by the "sleeping disease" fungus (*Fusarium lycopersici*), which is easily seen on cutting its stem through just above its junction with soil. Though usually attacking Tomatoes, it is not uncommon in the case of Cucumber and Melon plants. The leaves droop, and the stem collapses. The root is attacked first, gradually extending to the lower part of the stem. The fungus is capable of leading a saprophytic mode of life, and from this passes to a parasitic one. There is no remedy, and the only preventive appears destroying the fungus in its saprophytic stage, this being effected by the free admixture of lime, or, better, by sterilising the soil. The mycelium appears to be destroyed by the use of lime, and in consequence the plants are not attacked. It should be used some time in advance of the soil being used for Melons, as the causticity of the lime is not favourable for Melon growth. Sterilising the soil by exposing to a temperature of about 180deg not only destroys the mycelium, but also the resting spores of the fungus.

MELON PLANT GONE OFF—TOMATO LEAVES (G. S.).
—The plant is quite sound at the roots, but the stem is in a decayed state. This is due to what is known as Melon bacteriosis, this being indicated by a decay of the stem in close proximity to the root, and the whole plant withers and dies. Examination shows that the decomposing tissues teem with bacteria. The disease was first investigated in the United States and it was found that by inoculating healthy plants with the virus, the germs obtained were abundantly able to introduce a rapid decay into Cucumbers and Melons. Numerous other experiments were nearly all successful in demonstrating that the diseased virus may be communicated by inoculation to healthy stems. So far, the disease is but little known in this country, and in the only case that occurred with us, we found freely dusting the stems with air-slaked lime the best palliative. Perhaps the best treatment is to burn without delay affected plants, and dress the whole of the surface of the house with a solution of formaldehyde or formalin, one fluid ounce to a gallon of water. In the case of your Tomatoes, there is no disease. Probably there has been some "spot," or the plants may be affected with "sleeping disease."

MUSCAT GRAPES SHRIVELLING AT SETTING
(J. W. S.).—The affection on the stems of the side branches of the bunch is that known as “shanking,” a term applied to denote the drying up of the stalks of the bunches and berries and when it occurs at the time of setting, is attributed to immaturity of the wood in the previous season. There is not otherwise any trace of disease, the leaves being quite healthy, and it is very difficult in such case to trace the shanking to its true origin. Probably the border is too rich, or has been kept too wet, hence to some extent sour, in which case it would be well to give the border a dressing of air-slaked lime, making it quite white all over, and the subsequent watering would wash the lime more or less into the soil. Or apply a dressing of three parts superphosphate of lime, two parts sulphate of potash, and one part sulphate of magnesia, using 4oz of the mixture per square yard, pointing in very lightly. We should also keep the soil on the dry side, only watering so as to prevent the foliage from becoming limp, and thus securing thoroughly solidified and matured wood; the shanking would not probably recur. If the roots are at fault, either through being in a border which is too rich or too wet and sour, the only remedy that can be adopted is to take up the Vines carefully and renew the border.

CARRYING OVER LILY BULBS (S).—What care should *Lilium Harrisii* bulbs have that are left over? Will it pay to keep them over? They have from five to fifteen blooms, and have not been forced with bottom heat; would it be best to cut them, or let them die down?—[The best thing to do with the Lilies is to cut the flowers and sell them, and throw the plants on the rubbish heap. It does not pay to keep Lily bulbs over from one year to another.]

VARIOUS (Mrs. C., Duns, N.B.).—In the case of the Black Currant budmite, we would refer you for information to the leaflet published by the Board of Agriculture and Fisheries, 4, Whitehall Place, London. Simply apply for it, and it will be sent in a few days. All the leaflets of the Board are free. Ask for a list of them. Then, the culture of Celeriac is easy, and follows that given to Celery. Place your frame plants out in brakes in June, each plant 1ft from its neighbour. As the stems are not required, it is unnecessary to blanch them (except the lower portion), so that the plants need not be grown in trenches as with ordinary Celery. All side shoots and side roots should be removed during the season. The stems may be left in the ground during winter, or they may be lifted and stored in dryish soil like Carrots and Parsnips. Regarding your third question, we think you ought to find a plentiful supply of seeds of the plant called "Good King Henry" by the roadsides; at least, it was plentiful in the Melrose district in our youth. Or apply to a good seedsman—any of our advertisers—or your own local seedsman.

PÆONY STEMS ROTTING (Constant Reader).—The specimens are afflicted by the drooping disease of Pæonies. Healthy looking plants, some time before the period of blooming, suddenly become limp, especially on hot days, the stem soon afterwards droops, and within a few days dies. If the stem of a diseased plant is examined, a very delicate white mould will be seen on its somewhat blackened and shrivelled surface, just above the ground. This is the conidial condition of the fungus causing the collapse, and is known as *Botrytis Pæoniæ*. Later on numerous minute black sclerotia are formed in the tissues, both above and below ground, and this stage is known as *Sclerotinia Pæoniæ*. The *Botrytis* produces numberless conidia or spores, which, carried by wind and other natural agents, infect other plants in the vicinity. The sclerotia remain in the soil until the following season, when they produce conidia, which infect the stems near the ground. The only preventive and repressive measures are removing drooping stems without delay and burning them, thus preventing the spread of the disease and its continuance. The application of green manure or raw leaf mould as a top-dressing should be avoided, as it causes Pæonies to become infected, as the mulching of rank material, even if it does not contain spores, affords the fungus a congenial matrix for its spores, and sclerotia present in the ground or wafted there, in which they reproduce themselves rapidly, for the fungus is capable of a saprophytic as well as parasitic mode of life, and in the spring seizes on the tender stems of the Pæonies, infection being almost certain to take place.

NAMES OF PLANTS. — Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (M. M.).—1, next week; 2, *Ardisia crenata*; 3, *Cestrum elegans*; 4, *Davallia bullata*; 5, *Begonia sanguinea*; 6, *Browallia speciosa*. (Constant Reader).—The climbers are species of *Passifloras*, but we must see the flowers. (A. L.).—1, *Aubrietia* Dr. Mules; 2, *Vinca radicans variegata*; 3, *Veronica Hectori*; 4, *Acer dasycarpum*; 5, *Artemisia tridentata*; 6, *Silene grandiflorum*.

Meteorological Observations at Wisley, Surrey.

Taken in the Royal Horticultural Society's Gardens—height above sea level, 150 feet.

Date.	Temperature of the Air.				Lowest Temperature on Grass.	Temperature of the Soil. At 9 A.M.			Rain.	Wind.		Sunshine.
1904.	At 9 A.M.		Day.	Night		At 1-ft. deep	At 2-ft. deep	At 4-ft. deep		Direction.	Total velocity for the 24 hours ending 9 a.m.	
May.	Dry Bulb.	Wet Bulb.	Highest	Lowest.								
	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	Ins.	Miles.	h. m.	
Sun. 15	57	51	70	44	37	54	53	50	—	S.	127	10 16
Mon. 16	63	55	73	40	32	55	54	50	—	S.E.	207	8 6
Tues. 17	57	53	66	55	54	57	55	50	—	W.	236	8 27
Wed. 18	56	51	62	46	41	56	55	51	—	S.W.	257	3 1
Thurs. 19	53	50	62	41	34	55	55	51	—	W.	71	13 42
Fri. 20	58	49	61	35	27	55	55	52	0.71	E.	250	7 38
Sat. 21	47	46	51	46	43	54	54	52	0.01	E.	74	—
MEANS	56	51	64	44	38	55	54	51	Total 0.72	—	177	8 44



Railway Rates Once More.

We have several times mentioned the grievances which British farmers have against our national railway companies; but, finding that agitation seemed only to aggravate the evils complained of, we abstained from further comments for a time. As, however, the attitude of the railway companies has been described by a series of articles in the "Times" newspaper as being in every way friendly to agriculture, we think it is opportune to once more allude to the evils complained of.

Now, we are being told every day that foreign countries under protection have to pay higher prices for everything. How is it, then, that French railway companies can afford to convey Potatoes to Boulogne at about half the rate per ton which the British railway companies charge for conveyance to London? Either the advantage of Free Trade is a myth, or the patriotism of the French railways is superb. We want some of this patriotism on our side. The absence of it is every day bringing nearer the nationalisation of our railway system.

The weakness of our present railway system lies in the fact that the companies generally are so lacking in initiative that they seldom introduce a reform until they are driven to it. We have seen considerable improvement of late in the rates for carriage of parcels, and if we had seen a corresponding improvement in the acceleration of delivery, we should certainly have had much ground for satisfaction. As, however, the lead in this matter was taken by the General Post Office, it is to that excellent institution we should give the credit. As the G.P.O. has once raised the limit of weight of parcels and made the rate a little easier, we see no reason why it should not extend its operations to heavy weights by rail only, and not to include local delivery, which might come later. When we can find a Postmaster-General who will propose such a reform as that, we shall be within measurable distance of the nationalisation of railways, and an immense benefit to rural industry must inevitably follow.

We are quite aware that in writing thus we are treading on the corns of thousands of railway shareholders, who will naturally think that we are crying down the value of their stock. We are doing nothing of the kind; we only wish to impress upon the minds of railway shareholders the fact that there are other sources of traffic than imports; that there is an immensely improved internal carrying trade to be had for the encouraging; and it will pay them better to develop their present local systems than to spend further capital in the building of new trunk lines in the interest of the foreigner.

We notice that the rate from Strazeele to Boulogne (forty-seven and a-half miles) is 2s. 8d. per ton for truck loads of Potatoes. We also know that the rate from our station to one of the large markets is 6s. 9d. per ton for a journey of forty-six miles—practically the same distance—at little more than one-third the rate. This 4s. 1d. per ton difference on an average crop will, in many cases, pay the farmer's rent. To say the least, it gives the French producer a great help towards competing with us in our own markets.

The "Times" correspondent writes of farmers' "blind persistence in unreasonable complaints and more or less unfounded allegations"; also that "the farmer should do more than content himself with cherishing grievances against the railways, because they do not quote wholesale rates for the transport of retail lots." The difference between French and English rates, which we have quoted above, is on 4 ton lots, which can hardly be called retail consignments. The "Times" correspondent also says: "The British railway companies, instead of being in any way hostile to British agriculture, are profoundly interested in its welfare for many reasons, apart from the amount of agricultural products given them to carry." We are very glad to hear that there are other reasons, for they have hitherto shown very little inclination to encourage agricultural traffic. They have appeared to treat it as unworthy of serious consideration, and as if they would rather not be bothered with it.

The question of rates is not the only grievance. The lack of proper wharfage or siding room at rural stations has often been the cause of much loss of time to farmers' teams. Waggons delivering farm produce to a station two or three miles away should have no difficulty in making two journeys per day; but if they are kept waiting for a couple of hours during shunting

operations in the morning, there is no chance of a second journey, and half a day is wasted. Then there is the difficulty of obtaining empty waggons. During the winter, but especially in autumn, farmers often have to wait a week, or even two weeks, after ordering a truck before they find themselves supplied. Delay often leads to loss of market, and the consignor having to accept a lower price. This applies to the carriage of dead produce. The companies are more particular as regards the supply of cattle waggons; perhaps it is because the cattle rates are so high, and therefore pay them better; perhaps it is because cattle and sheep consignments are usually made by dealers or salesmen, who are members of an association, and have a nasty habit of demanding and obtaining compensation.

Here is a hint for farmers. Railways combine, cattle dealers combine. Are farmers always to be the exception to the rule? If in each administrative county there were a farmers' railway rates association, which could meet once a quarter, and, after hearing complaints from members, would approach the companies in connection therewith, much more notice would be taken than of the complaints of individuals, which are curiously acknowledged and then probably reach the waste paper basket.

Work on the Home Farm.

We have had a fine week, with more strong winds, and the soil has dried very rapidly, with a tendency to bake when left rough. The Cambridge roll is indispensable now. We are ploughing our swede and turnip land, and the heavy roll is made to follow the ploughs, the two operations being completed in one day. Plenty of moisture turns up from below, and the surface requires an hour to dry before the roll comes upon it. The latter leaves a smooth surface; no moisture will be lost; and we shall have a lovely green mould when we commence ridging for swedes in a week's time. Many farmers will have commenced already, but June 1 is early enough on light to medium soils. Very few fields were planted with potatoes early, but in some of these the young haulm is showing. Complaint is made that the plants are coming up anything but regularly. Perhaps the seed was partially flooded last autumn, or it may have come from a crop which was lifted somewhat green. We believe in thoroughly ripened seed.

Eldorado potatoes may not, after all, be pure gold. One purchaser of plants has lost every one, and another purchaser who got three has difficulty in getting them on. These sprouts must have been very weak, or the potato is a poor grower.

We have previously mentioned the quantities of turnip seed which we think advisable to sow. We have never sown less than 3lb of swede seed per acre, and we have put on 3½lb. One pound would be ample if there were no casualties, but we must provide a supply for the fly to eat if he appears, which he is ever liable to do. Of common turnip seed, 2lb per acre is ample.

We got our ewes washed, and the winds have dried the fleeces. It is rather cold now, and the wind is keen, so we shall wait a few days longer before clipping. The wool trade is much more promising. We hear of half-and-half making 22s. per tod.

Good beef is dearer, and sheep are selling better than they have done for years, so stock-breeders are having a good time. The case as regards horses is not so good. There is still a great deal of influenza about. Few deaths from the complaint, but very great inconvenience and hindrance to farm work.

Foaling of heavy mares has been very unfortunate. Foals have dropped off by scores. In one typical breeding parish there is only one foal living, and it is a light-legged one from a common mare; but that sort never die.

Webb and Sons at Swansea.

Messrs. Webb and Sons, the King's seedsmen, Wordsley, Stourbridge, had an exhibit at the Bath and West of England Agricultural Show which was in every way worthy of their position. All descriptions of seeds, roots, grasses, cereals, &c., were represented, as well as chemical fertilisers—the latter being an important branch of this firm's business—their special turnip manure being in great demand at the present time. Webbs' new Mont Blanc Wheat, White Queen Wheat, new standard Red Wheat, new hardy winter Black Oat, and new Burton Malting Barley, and the celebrated Webbs' Kinver Chevalier Barley were on view. Webbs' grasses, clovers, and other forage plants for permanent pasture, alternate husbandry, &c., were illustrated by dried specimens, together with their seeds showing the proportions of each for the respective purposes and soils. An interesting portion of the stand was the flowers, which included Excelsior Gloxinias, and in the vegetable section the new Leader Pea attracted considerable attention. Their seed Potatoes, of which large quantities have been exported to South African Colonies during the past season, are highly spoken of for their fine quality and heavy cropping properties.

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**Journal of Horticulture.**

THURSDAY, JUNE 2, 1904.

Unity is Strength.

AMONGST those who have known the British gardener and have learned to understand the many genuine types of the race found in the three kingdoms, there will be no lack of knowledge as to the feeling of goodwill existing between man and man. A sense of hearty good-fellowship prevails; the sense of friendship, which lends a ready hand to help in times of trial and trouble, whether these arise from the failures in the ordinary course of everyday life or at the more momentous times when the gardener must ask as to his future situation, Where next? This may not find expression in the offer of pecuniary assistance. The average gardener when in steady employment is seldom too well provided with all he needs for his own requirements; but there is an eagerness to impart information as to possible and actual vacancies, and an ever ready willingness to assist in tiding over the temporary difficulties inseparable from the removal of families and household goods from one part of the country to another. Many there are who could speak from grateful experience in this connection.

This may be said to be painting the best side of the picture as applied to the gardener. It at least serves to show the strong undercurrent of union between man and man in the ups and downs of the calling. And the knowledge that this strong feeling exists may well have given encouragement to all who have endeavoured to form the British Gardeners' Association. The chief objects put forward by the provisional committee are such as have called for consideration for at least a quarter of a century. They have, it is true, received attention from time to time in horticultural journals, but so far the result has been small.

Employers will no doubt recognise the desirability of an organisation, the main object of which is to guarantee trustworthy gardeners of sound ability. If the association can get employers on their side in the matter of registra-

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tion, the battle will be more than half won. The "reasonable remuneration for services rendered" will then follow in due course. Did employers but realise more frequently the great difference a few shillings weekly may make in the households of their employés, they would not require the pressure of an association to cause them to disburse that which they, in the majority of cases, would never miss.

Leaving for the moment head gardeners, whose salaries, for the class of work and responsibility entailed, are universally acknowledged as being far too low, let us turn to the position of journeymen and others. We have toiled in more youthful days from six o'clock in the morning as long as daylight lasted in summer for sixteen shillings per week, and the questionable hospitality of a wretched building called a bothy. Duty weeks meant working until eleven at night, and in bad weather all hours of the night. We believe that nowadays bothies are better generally, and there is a more general tendency to pay for overtime; but the terms are much the same for a journeyman to-day as they were twenty years ago. The work of a good journeyman is unquestionably that of a skilled worker, yet though the wages of all other skilled workers have shown a considerable advancement, theirs for many years have been at a standstill. These coming gardeners are the men the association will seek to enrol: the thoroughly earnest, the worthy, and only those who can provide a recommendation obtained from a trusted chief. These, too, are more likely to benefit from the advantages of such an association than those of an older generation, who may not hope to claim, or directly participate in, the benefits arising from increased remuneration, improved social status, or a more independent position.

As bearing upon this question of the wages of the younger men, we remember a well-known head saying, "Oh, yes, we are obliged to have a decorator, and pay him a guinea a week—bricklayers' labourers' wages!" The establishment is a very large one, and the owner several times a millionaire, yet what a pittance to give a man who must not only be a good gardener up to a certain point, but a skilled artist also! We, however, years ago, in an establishment quite as large as the one mentioned, carried out the decorative work for less money than a guinea per week, so that here at least we must admit some advancement.

Taking the case of foremen gardeners, we may find that, taken generally, wages are not so high as they should be. What a skilled artisan, at the head of a body of men, would say if offered the noble remuneration of 18s. per week (with the usual bothy, milk, and vegetables, of course), we need not here stay to consider: it would without doubt be something more forcible than polite. Yet your thoroughgoing young gardener who has attained to the position of foreman is frequently, for all practical purposes, as good a man as his chief; nay, we have known instances where the positions for many branches of work should have been reversed. There are, it is true, places where foremen are as well and better paid than numbers of head gardeners, but these are singularly few and far between. The foremen or heads of departments in nurseries are better paid, but their positions are more on an equal with those of heads of private establishments.

We thus see plainly what has long been admitted by impartial judges, that gardeners of all stations are badly paid except in rare instances. The hours of labour are many, and the moments of relaxation few; yet, if taken in a body, there are no more willing workers in the land, and none more persistent in struggling against difficulty in earnest strenuousness. This he does often with little encouragement from those he serves, and too frequently labouring whilst feeling that another will reap the fruits of his labours.

Granted all this, still we find there has never been any organised attempt to better his condition. Will the association now formed succeed? Where single-handed efforts have failed, and individuals have suffered miserably, a well-organised body may be successful. Success will attend the association if the aid of some, at least, of the employers can be requisitioned.

The subject is of much importance, and we could extend these remarks to far greater length, but must not. In the formation of a gardeners' association, and in the realisation of its proposals, there lies the opportunity for a practical illustration of that fraternal feeling existing so pre-eminently amongst gardeners. In fighting a peaceful battle there should be no scope for a display of tyranny on one side, or of cowardice on the other. We would, however, in conclusion cull another extract from the article previously mentioned, and which has called forth these remarks, and end with the words of Howell, "But association will not be strong, however numerous in membership, if the units that compose it are cowards."



Cattleya Statteriana.

This remarkable supposed hybrid was exhibited by Mr. Johnson, gardener to Mr. T. Statter, of Stand Hall, Manchester, at a meeting of the Royal Horticultural Society in 1892, and, so far as we are aware, the stock of the variety has never left Mr. Statter's collection. The plant flowered from an imported piece, and it was thought to be a natural cross between *C. gigas* and *C. aurea*. The apical area of the lip is rich velvety crimson, and purplish streaks radiate into the throat. The crimson lobes are deeply coloured with rich nankeen yellow, and along the whole of the edge of the flower runs a feathering of rosy carmine. The sepals are ivory, deepening to lemon, and the petals are pure white.

Cultural Notes.

Dendrobium Falconeri is a very distinct and beautiful plant, differing from all others in the genus in habit, and requiring special culture. The growth consists of large numbers of small stem-like pseudo-bulbs, only a few inches in length, each rooting separately from its base. To allow these to ramble away at will without anything tangible to cling to is to court failure at the outset, for each one should be within reach of something that the roots can lay hold of.

I have tried it in various ways, such as placing a number of rough oak stakes in the pots, and disposing the stems as regularly as possible among them, tying the strongest and leaving them to take hold where they can, wiring to cork blocks and to pieces of tree-fern stems, and all have been satisfactory when once the stems have taken hold. But in no case must much compost be given, for the roots cannot take to it, and it lies as a wet mass about them, to their detriment. An old-fashioned and had plan of growing this orchid was wiring sods of peat to cork or wood blocks, and fastening the plants to it. The peat was always silting out and making a litter about the house, and was quite unsuited to the requirements of the roots.

The upkeep of a proper atmosphere is very important in the case of *D. Falconeri*. It likes ample heat and exceptionally free supplies of moisture when the weather is bright during the growing season, but when it is dull no good comes from unduly forcing the heat. The moisture is necessary as much for the sake of keeping thrips in check as for hastening the growth, and if these insects are in a house at all they are sure to find out this superb plant. From the time the flowers fade until the little growths are complete, this quickened growing atmosphere must be maintained when less heat and moisture, combined with sunlight, will ensure a thorough ripening.

In winter a cool, restful temperature with only sufficient root moisture to prevent shrivelling is required, this in its turn being followed in spring by a gradually increasing heat, but only slight atmospheric moisture, until the flowers can be distinctly seen. In appearance the flowers are not unlike those of *D. Wardianum*, being pure white in ground colour, all the segments tipped with amethyst, and the lip blotched with deep orange and purple.—H. R. R.

Chlorophyll.

At this lovely season of the year, when foliage of infinite shades, and verdure in all its vernal freshness, clothe the landscape with an indescribable charm, it probably seldom occurs to the beholder that this universal greenness represents the first and most vital essential of his own existence, it being practically the one and only vehicle for the transformation of solar activity into potential life. All life is dependent, directly or indirectly, upon vegetation, and the old saying that "all flesh is grass" is absolutely and literally true if we accept grass as the symbol of vegetation generally. The meat-eaters are always dependent upon vegetable-feeding animals, as a moment's consideration of our own case will clearly show, and hence we are easily led to the conclusion that the entire realm of organic life is based on the capacity of plants to grow.

We next find that all plants, except those which are practically parasitic ones, or fungi, which feed upon plant tissues dead or alive, and thus none the less exist at the expense of the green ones, can only form their foliage under the influence of sunlight, direct or diffused. Growth under the influence of electric or other artificial light forms no exception to this rule, for we have only to investigate their source to find the sunlight as its origin, since one and all kinds are obtained by the consumption of coal, oils, &c., which are merely the stored-up

products through the vegetation of past ages, of the sunshine of their time. Directly or indirectly, therefore, we always come at last to the sun as the impelling vital force, and in connection therewith we equally invariably find that this force can only find vital expression through the vegetation which clothes the world with verdure; naturally, therefore, we find a certain synchronism to exist between cause and effect; that is, between vital vegetative activity, and solar influence, especially as solar light and solar heat are so intimately associated, and the heat is also a factor in leaf development.

The next thing to consider is how the sunshine is enabled to do its vital work within the leaves, and although it is impossible

flavours, odours, and chemical products which exist in the plant world, and remember that all of these, nutritious, noxious, or even deadly poisonous, are fashioned by these little green grains, and that every leaf in the fair prospect we may be enjoying is an actual and busy laboratory, engaged in this varied work, our conception of the wonders of Nature, and especially of the wonders of chlorophyll, cannot fail to be immensely widened. There is, indeed, absolutely nothing else in creation, nothing so pervasive and so essential to life, which can be compared to it; and the more we investigate, the greater becomes our wonder and sense of reverence at the creative power which underlies it.

From the more microscopic forms of plant life to the giant



Cattleya Statteriana.

for us to define the actual "how," we absolutely know that the work is entirely done by the green colouring matter itself, the so-called chlorophyll, which is really the simple Greek of leaf colour. Within the partially transparent cells which form the fabric of all leaves this colouring matter exists as an infinite number of tiny green grains, which, under the influence of light, are enabled not only to multiply, but in some subtle way to break up or decompose the carbonic acid gas of the air, which is absorbed by the leaves through their pores, and such salts as may be contributed from the soil through the roots; and also to recombine their elements in infinite ways to form woody and leafy tissue, and, in short, build up the plant on wider and wider lines.

If we pause a moment to consider the infinite variety of

Sequoia, it is the tiny green grains which, in conjunction with the formative cell, the twin wonders of creation, enable them to exist and reproduce themselves; and, as we have already indicated, in those lowly forms of plant life, the fungi, which manage to exist without their actual presence within their substance, they can only do so by feeding, as carnivorous animals do, on organic matter previously shaped by chlorophyll, and consequently charged with nutritive elements. The green leaf, in short, forms the link 'twixt solar forces and life itself, and in viewing the wide expanse of verdure of hill and dale and field and forests in their spring and summer garb, we are the actual witnesses of the wondrous process of transformation upon which our very existence and that of life in every other form, is absolutely dependent.—CHAS. T. DRURY.

NOTES

NOTICES

Mitraria coccinea.

This dense-growing evergreen greenhouse plant, with its handsome scarlet flowers, which are produced in summer and autumn, is of easy culture. It grows well in a compost consisting largely of peat and coarse sand, flowering freely even in a small state. The plant is remarkable for the length of time it continues to produce flowers.

Kew Guild Gardeners' Dinner.

This annual festival was held on the eve of the Temple Show in the Holborn Restaurant, London, Mr. W. Watson, curator of the Royal Gardens, Kew, in the chair. About 120 attended, and an enjoyable evening was spent. Lord Onslow, President of the Board of Agriculture and Fisheries, was present, in company with Sir William Thiselton-Dyer.

Fruit and Railway Rates.

Gooseberries have experienced almost a "slump" for this time of the year, and rule very much under previous annual prices. Indeed, this particular fruit may be regarded as a forecast of the coming season. Everything points to abundance and low prices—to the benefit both of producer and consumer; but the "fly in the ointment" remains in railway rates. Unless there is some amendment in this direction, quantities of produce will be left to rot in the fields. Soon, however, it is to be hoped the railway companies will awake to their own interests, and find that it is more profitable to send 100 tons at 5s. per ton than ten tons at one-half more money.

Spraying of Charlock.

The East of Scotland Agricultural College authorities have issued a bulletin giving a brief account of their experiments in the spraying of Charlock in corn crops. The bulletin states that at the time the Edinburgh College took the matter up it had been proved that a 3 per cent. solution of sulphate of copper in 50 gallons of water per acre, distributed by means of a Strawsoniser, was the best means of destroying the Charlock. The college authorities made some experiments on these lines in different counties, and they came to the conclusion that the facts which had been previously proved in regard to efficacy of spraying with the sulphate of copper solution stood in no need of further proof, and "the governors of the college do not consider further free demonstrations in Charlock-spraying necessary." The bulletin may be usefully read by those who have any trouble with the "Skellach" pest.

The Country Gentlemen's Estate Book, 1904.

This compendious book dealing with wide subjects of rural interest lately reached us, and we would briefly refer to some of its contents. The work is divided into sections dealing with (1) estate management, (2) estate work, (3) farming, (4) forestry, (5) gardening, (6) sports and pastimes; and under each of these divisions there are numerous highly interesting and valuable articles. We might quote some of the titles, as: The accounts of the estate office; the individuality of the land agent; estate law; motor transport for goods; application of refrigerating machinery to modern dairy practice; an estate brickyard; inexpensive cottages; gates on the farm; water supply; engine power; land drainage; the farmer of to-day; relative values of feeding stuffs; on showing poultry; pitfalls of poultry farming; British egg trade; bacteria in agriculture; preserving eggs in water-glass; woods and coppices of Hampshire; fruit culture; motor lawn mowers; grouse driving; and the moral effects of country sports. The "Country Gentlemen's Estate Book" is a mine of information on all the subjects that agriculturists, horticulturists, foresters, and rural craftsmen, and landowners are most likely to desire information upon, and as it is admirably illustrated and beautifully printed, it is a pleasure to recommend it to those who are not yet acquainted with it. The book is obtainable from the Country Gentlemen's Association, Ltd., 2, Waterloo Place, Pall Mall, S.W., price 10s. 6d.

"Small Culture."

This is the title of a book on "Orchards, vegetables, allotments, glass culture, and bee-keeping," and each subject is treated by a separate author under the general editorship of Mr. W. J. Malden. The book numbers 80pp., each 7in by 5in, and there are some illustrations. We notice quite a number of mis-spelt names in the lists of varieties of Apples, and the amount of cultural information vouchsafed will hardly satisfy the needs of those for whom the book is intended. It is published by Messrs. E. Marleborough and Co., 51, Old Bailey, London, E.C., price 1s., or in cloth, 1s. 6d.

Recent Supplies of Fruit.

The Whitsun fruit supply was very plentiful, most especially as regards Apples and Bananas. Despite the varied nature of the Apple imports from Australasia, America, and Canada the arrivals of Bananas for Whitsun were so enormous that in weight they were equal to them. The Apple arrivals for the week preceding Whit Monday in 1903 were 11,073cwt. This year for the same period they were 42,340cwt., nearly four times heavier. The weight of the Banana imports for the past six days exceeded 42,000cwts. About a quarter of a million bunches of Bananas were stocked for Bank Holiday. The Cherry arrivals are heavy in comparison to what they were at this time last season. Loquats have been sold as low as sixpence a dozen in Covent Garden Market to seaside fruiterers. Australasian Pears have met a free inquiry from dealers in holiday making centres. Most fruits, including green Figs, Grapes, forced Strawberries, and Nuts, are abundant, and very reasonable in value. Paris Apricots have been marketed in large quantities. They are meeting a brisk sale, and are highly appreciated by retail fruiterers. Over 100,000 cases of Oranges, more than 50 per cent. of which were from Valencia, have been put upon the market. The latter are the cheapest and most popular Oranges obtainable at Whitsuntide. Forced Grapes are now cheaper, but the best Muscats are selling retail as high as 10s. a pound. Hamburgs are being sold at 1s. 6d. and 2s. Almerias are worth 1s. The nut supply is always heavy at this time. Barcelonas and Cocoa-nuts are excellent, and very reasonable in price. Small Spanish-nuts are abundant, but cost more than Barcelonas.

Some Daffodil Notes.

Skirting the South-Western Railway, near Surbiton Station, are the Ditton Hill Nurseries, where the passenger, as he glides along, observes between six and seven acres of ground, wholly occupied in the growth of Daffodils. By the morning light the orange deepens the colour of the perianth, and in the evening the leading colour is imparted by the corona—a creamy white or gold, as the variety may chance. The beds vary in character to suit the educated taste which now prevails. There are still to be seen in these Barr Nurseries the very old stock from which all modern varieties have been developed. The tiny three-quarter inch yellow Narcissi cyclamineus, with reflexed perianth, and the creamy white Triandrus albus, with two to three flowers on each stem, perianth reflexed, with cup $\frac{1}{4}$ in in length, first brought to this country by Mr. Barr, sen., from the Spanish and French Pyrenees, to their grandest forms in Madame de Graaff, a white trumpet, and the Gloria Mundi, yellow, with stained cup. As it takes from seven to eight years from hybridising to produce the first bulb of a new variety, the public taste was slow to recognise the beauties, the varieties, and the possibilities pertaining to the simple yellow flower of the field with which they were familiar. But now the fashion has set in, and the Daffodil will long remain the favourite spring flower of the English garden. The Chalice Cup is a cross between the poeticus Narcissus and the trumpet Daffodil; a cross between poeticus and triandrus albus produces a new race of chalice cups, pure white, and from two to three cups on the same stem. Of this variety the Alice Harvey is one of the best types. The Queen of Spain is a hybrid between the Lent-lily and the triandrus albus; the perianth is semi-reflexed and yellow. The Glory of Leiden has the trumpet boldly raised before the perianth, while in the Sentinel the trumpet droops and the perianth is raised and fixed like a star. These flowers, planted in the grass, fringing meadows, in copses by the side of streams and lakes, and in woodland glades, produce a beautiful effect. There are over two millions of these flowers now in the Barr Nursery grounds.

Iris squalens.

A collection of bearded Irises is an ornamental feature in any garden, and one may very safely say that no genus of hardy plants excel in the graceful beauty of their flowers, those of the Irises. The fine old species that we figure on page 481 is now just opening its earliest blossoms. The falls are bright lilac-purple, with a conspicuous yellow beard, while the erect and rather crisped standards are dullish lilac and brownish yellow.

Encomium on Belvoir Castle.

The compression necessitated in the descriptive notes of Belvoir in the last week's *Journal* debarred the inclusion of the poetic verses written at Belvoir by that supreme actress Fanny Kemble during two separate visits there, in praise of its beauties and nobility. The first construction was written in 1842, and the second followed after forty years.

MARCH 26TH, 1842.

Farewell, fair Castle, on thy lordly hill,
Firm be thy seat, and proud thy station still;
Soft rise the breezes from the vale below;
Bright be the clouds that wander o'er thy brow.
O'er the fair lands that form thy broad domain,
Short be the winter, long the summer's reign.
Pilgrim of pleasure to thy stately towers,
Fain would I leave among the friendly bowers
Some votive offering—and, ere on my way,
With many a backward glance I turn to stray.
Bid virtue, strength, and honour crown thy walls,
Joy, love, and peace abide within thy halls.
While grateful mirth and noble courtesy,
As now, for ever hold their seat in thee;
And still upon thy lordly turrets rest
The grateful blessing of each parting guest.

* * * *

Two things remain unaltered in this place,
Though forty years since I came here are told;
The lovely aspect of fair Nature's face,
And the fine spirit of kind, courteous grace,
Which still presides here as it did of old.

March 29th, 1883.

FANNY KEMBLE.

A Treatise on Manures.

For a good many weeks this book, or the new edition of it, to be correct, has lain before us awaiting a brief notice. So well known is Dr. A. B. Griffiths' "Treatise on Manures," and so highly valued is it for its explicit tables showing the ingredients of various chemical fertilisers, and of crops, and the effect that the divers manures have when applied, that it is not necessary to write at length about the book. The arguments and the language employed, together with the very full statements of the subjects brought consecutively under notice, are such that beginners can follow the chapters intelligently from end to end. The present edition, however, would seem to have been left unrevised in parts, and appendices have been written to bring information up to the state of present knowledge. As an instance of our conclusion in this respect, we notice that the Potato disease (*Phytophthora infestans*) is still named *Peronospora*. The cost of the book is 7s. 6d. from Whittaker and Co., 2, White Hart Street, Paternoster Row, E.C.

Ware Horticultural Society.

The monthly meeting of this society was held in the Vicar's Room on May 26, when Mr. F. Noyce, head gardener at Presdales, read a paper on the growth of Carnations. Mr. Noyce grows over 500 pot Carnations at Presdales, and has frequently exhibited some handsome flowers at the meetings. The exhibits of the evening were the finest ever seen at an ordinary meeting of the society. There were no less than thirty-five altogether, the most noteworthy being four handsome *Caladiums* from Mr. G. Fulford; a collection of flowering shrubs, Irises, Pansies, and *Clerodendron* from Mr. F. Noyce; *Pelargoniums*, Asparagus, and Cucumbers from Mr. J. Spencer; *Pelargoniums* and *Paeonies* from Mr. A. Wheatley; Iris, Asparagus, Cabbages, and Lettuces from Mr. W. Godfrey; some fine *Malmaison* Carnations and ferns from Mr. F. Welch; basket of Spinach from Mr. T. Brighty; Geraniums and Gooseberries from Mr. J. Page; *Calceolarias* and Lettuces from Mr. J. Smith and Mr. J. Rule; Broccolis from Mr. C. Brazier; a very handsome plant of *Genista fragrans* from Mr. T. Knight; and Lilac and handsome Strawberries from the secretary (Mr. G. Gumbrell). The usual vote of thanks was accorded the judges (Messrs. W. Phillips and Bates), the exhibitors, and the chairman.

The President of the National Potato Society.

Sir J. T. D. Llewelyn, Bart., has kindly consented to become president of the National Potato Society.

Sale of the Oakwood Orchids.

The amount realised by the sale of the duplicate orchids from the collection of Mr. Norman C. Cookson, Oakwood, Wylam-on-Tyne, at the rooms of Messrs. Protheroe and Morris, Cheapside, on Tuesday last, amounted to £5,600. Record prices were thrice broken.

Calceolarias from Messrs. J. Veitch & Sons.

The Chelsea firm have sent us a selection of flowers from their *Calceolarias*, which illustrate the brilliant, and in some cases remarkable, colours and combinations of colours now obtainable. One is rich bright golden; others are buff or orange, or chestnut, and bronze, red, crimson, puce, and almost black, represent shades in others. The pouches are large, and where spotted they are very pretty. Some new shades are seen in the various yellows; and some have large and small spots intermixed on the same lip.

Bristol Gardeners' Mutual Improvement Association.

The opening meeting of the summer session was held at St. John's Rooms on May 26, Mr. P. Garnish occupying the chair. The evening was devoted to reviews of the past twelve months' work, prizes being offered for the best review by Messrs. Parker and Son, Queen's Road. There were three competitors. On the votes being taken, the awards were:—1st, Mr. W. Ellis Groves; 2nd, Mr. J. T. Curtis; 3rd, Mr. H. Kitley. Prizes for pots of *Calceolarias* went to Mr. A. Coles (gardener, Mr. Bird), and Mr. F. C. J. Fisher (gardener, Mr. Shelton). A certificate of merit was awarded to Mr. J. T. Curtis (gardener to Mr. W. Howell Davis). A special certificate of merit being recommended for Mr. Shelton (gardener to Mr. F. C. J. Fisher).

Horticultural Instruction in Massachusetts.

The Department of Horticulture and Landscape Gardening in the Massachusetts Agricultural College has arranged its work so that students matriculated in the regular four years' course may occupy the junior and senior years almost exclusively with landscape gardening and closely related branches, a thorough foundation for these special studies having been laid during the freshman and sophomore years. The studies of the junior year include agriculture, horticulture, botany, engineering, free-hand drawing, mechanical drawing, geology, chemistry, entomology, English and economics, in addition to the landscape gardening. During the senior year the student may elect practically his entire course, and can arrange to spend a large part of his time in landscape gardening. The landscape gardening proper includes the general theory of design as applied to this particular art; the knowledge of trees, shrubs, and flowering plants, and their use for decorative purposes; the propagation, cultivation, and care of such plants. Engineering includes earthwork, construction and maintenance of roads, drainage, &c. Besides, this, the student receives instruction in such closely related matters as surveying, freehand drawing, mapping, &c. From the beginning the work is largely practical, and calculated to give every student actual experience in the different operations. In the field the student propagates, handles, and plants out the trees and shrubs. Every spring the Department of Horticulture has a large amount of planting out to do, much of which is done from scaled plans; and the students take part in this work. In surveying and engineering, the work is likewise carried on largely in the form of practical field exercises. In the landscape gardening drafting room the student begins by copying classic designs from the masters of landscape gardening, just as students of painting or sculpture begin by making copies from the classic works in their respective fields. At first only small details are copied, such as the design of a simple gate, or a park entrance. Gradually more complicated subjects are taken up, until the student finds himself able to make an intelligible drawing of any landscape gardening construction. The student then passes to original exercises. Here, again, the simplest problems come first, but those of greater complexity are taken up as rapidly as each student's ability justifies. The student is now ready for larger undertakings, such as involve location of buildings, drainage, grades, drives, various constructions, planting, &c.

Societies.

The Temple Flower Show.

Legions of Maples, as it seems, are again waving their graceful branches and their coloured foliage by the sides of all the boarded paths in the Temple Gardens on the Thames Embankment. Clouds of ebullient canvas overtopped by rippling banners once more rise from a verdant floor; and the fragrance of myriad blossoms intermingles with the wafted strains of music—and life holds nothing sweeter than these.

This magnificent vernal tourney of high horticultural excellence repeats the successes of foregone exhibitions in the wealth and the beauty of its parts. Novelties and rarities and plants of manifold charms are outspread on every hand to accentuate in one bold impression, the embarrassment of riches by which we are endowed. Still, the chambers of our memory stir the captious, critical faculty, and we will bravely be ungrateful enough to plead for curtailments and eliminations here, there, and yonder—surely not to the ultimate prejudice of the Royal Horticultural Society? and undoubtedly not to the disadvantage of this renownedly resplendent show. Our garden nurseries of England are charged with a regal wealth of arborescent and of tropical exotic plants that suffer some neglect for lack of being directly presented to the cultivated judgment of the nobility, aristocracy, and gentry.

No otherwhere in Nature can the steps of variation and evolution be so strictly, quickly, and easily traced than by the study, even desultory study, of the floricultural subjects under cultivation. The rapid changes are remarkable, so that the "stars" and the "belles" of this decade are submerged by the greater brilliance and the increased merit of those in the next. Horticulture is now expansive, as it is intensive; and when Bulwer Lytton was desired to choose what memorial of existing British opulence he would leave to remote posterity, he might have done well to have preferred a detailed report of the Temple Show!

The Floral Committee had one hundred and thirty-four different plants before them seeking awards, and of this number thirty-seven were Begonias, six Pelargoniums, seven Hencheras, three were varieties of *Iris siberica*, twelve were Tulips, six Roses, four Gazanias, and four ferns. The Orchid Committee had also a large number of new subjects, so that both these bodies sat for a considerable time. As usual, the Fruit and Vegetable Committee had only a few exhibits to adjudicate.

Unfortunately, as we write (Tuesday morning) the weather has broken, and torrents of rain are falling. Monday was a delightful day, and a very considerable portion of the display was arranged by five o'clock, including nearly all the orchids in No. 5 marquee, together with the Rose groups, the Caladiums, Carnations, New Holland plants, Sarracenias, ferns, Begonias, Tulips, Gloxinias, Calceolarias, and hardy plants. Messrs. Veitch had Eremuri and the Umbrella Pine forming one of the open-air groups, with bearded Irises in front. Messrs. Cutbush had their clipped Yews and other trees; Barr and Sons had a tent with pigmy trees; Sutton and Sons filled a pavilion of their own by the secretary's tent; while under the various marquees there were choice groups from Mr. Jones, of Lewisham; Hugh Low and Co., Hogg and Robertson, Storrie and Storrie (Dundee), Carter and Co., Webb and Sons, and many others. The arrangements were such that no confusion prevailed in any part, and for this satisfactory state of affairs recognitions are due to the secretary, Rev. W. Wilks, M.A.; to the garden superintendent, Mr. S. T. Wright; to Mr. Reader, and members of the staffs both of the office and the society's garden. A military band was present on each of the three days. The cup, costing 55 guineas, presented to the society by Messrs. James Veitch and Sons, Ltd., to celebrate the jubilee of the establishment of that firm in London, was awarded for the best individual exhibit in the show to Messrs. W. Paul and Son, the famous Rose growers at Waltham Cross.

Not deterred by the rain, their Majesties the King and Queen visited the show about midday, and seemed greatly interested. The attendance on the first day was less than usual, though the tents were still very crowded.

Orchids.

Baron Sir Henry Schröder, Bart., V.M.H. (gardener, Mr. H. Ballantine), The Dell, Staines, contributed a highly creditable group of well-flowered specimens, including *Odontoglossum crispum* Rex, *O. c. grande maculatum*, *O. coradinei mirabile*, *O. excellens*, *O. crispum* Luciani, *Vanda teres*, *Masdevallia coccinea* Harryana, *Dendrobium Bensoniæ*, *Lælio-cattleya Digbyano-Mossiæ*, together with *Cymbidiums*, *Miltonias*, and *Phalænopsis*.

Mr. Jeremiah Colman (gardener, Mr. W. P. Bound), Gatton Park, Reigate, Surrey, had a group next to Baron Schröder's, but it lacked the quality of that very excellent display. The individual plants were well staged, and made a beautiful display, particularly the mass of *Miltonia vexillaria* and of *Cattleya Mossiæ*. It also included such good things as *Odonto-*

glossum crispum Mary Coiman, *O. Adrianae*, *Cattleya Schröderæ aurea*, *Masdevallia Harryanum* Bull's-blood, *O. c. Mrs. Causton*, and *Thunia marjorensis*.

Sir Frederick Wigan, Bart. (gardener, Mr. W. H. Young), Clare Lawn, East Sheen, had a very noble group, and admirably set up. The plants were in no way crowded, but stood up over a grounding of green ferns. We were able to note *Odontoglossum crispum marmoratum*, *Lælio-cattleya fascinator dulcis*, a perfect gem; also *L.-c. Canhamiana Marguerite*, with seven flowers; *Brassia brachiata*, *L.-c. Hippolyta Phœbe*, *Masdevallia vexillaria Memoria G. D. Owen*, the finest of this section; also *Cattleya Skinneri alba*, *Oncidium Gardnerianum*, *Lælia majalis*, together with *Cymbidium* and *Sobralias*.

Mr. Ch. Vuylsteke, Loochristi, Belgium, staged one of the most startling bigeneric hybrids of recent years. This was *Cochlioda noezliana* and *Odontoglossum Pescatorei* named *Odontioda Vuylstekeæ*, which hybridists have been trying to cross for the last ten years. This opens up new possibilities for fresh crosses, and as Mr. de Barri Crawshay observed, "You can picture a red *Odontoglossum crispum* in your mind," for this bigener is bronzy-red, edged mauve, with a lighter circle near the outer parts, and the lip has a bright yellow crest. There were other fine hybrids in this group.

Captain G. L. Holford, C.I.E. (grower, Mr. H. G. Alexander), Westonbirt, Tetbury, presented *Lælio-cattleya Digbyano-Mossiæ* Westonbirt var., *L.-c. Canhamiana Rex*, *L.-c. Hippolyta* with three splendid racemes, *Cattleya Mossiæ Wagneri*, and well-flowered *Cypripedium niveum* in pans. The group was well arranged.

The Messrs. Cypher, of Cheltenham, had a group of orchids remarkable for their sturdy, vigorous growth. This comprised such handsome species as *Cypripedium niveum*, *C. Ashburtoni giganteum*, *C. caliosum* Sanderæ, *Masdevallia Veitchiana grandiflora*, *Dendrobium nobile*, *D. suavisimum*, *Cattleya Skinneri*, and numerous other well-flowered *Cattleyas* and *Odontoglossum* plants.

Mr. John Cowan, of Gateacre, Liverpool, sent a brilliant display of the better known kinds, of which *Cattleya Mossiæ*, *Odontoglossum* in variety, *Cypripedium villosum exul*, *Odontoglossum Adrianae*, *Cypripedium Vipani* (a fine variety), together with *C. Dowlingeanum*, *C. Rolfeæ*, and *Lælio-cattleya G. S. Ball*.

A group of excellently flowered plants came from Messrs. W. Bull and Sons, King's Road, Chelsea, in which we were able to note *Lælia purpurata Chelsiense*, *Cattleya Mossiæ Countess*, *C. M. gigantea*, *Lælia purpurata Queen Alexandra*, and *C. Mendeli Doris*.

Messrs. Charlesworth and Co., Bradford, showed how much could be placed into small space effectively. Their flowers were very brilliant, large, and handsome. Here was *Cattleya Skinneri*, covering huge pans, also *C. Mossiæ Wagneri*, *Odontoglossum Pescatorei Charlesworthi*, *O. Vuylstekeanum*, *Lælio-cattleya fascinator*, and a host of other glorious subjects.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, were represented by a large and really magnificent pan containing *Cattleya Mossiæ* with three dozen flowers; also *C. Skinneri*, *Cymbidium Lowianum*, *Cypripedium ciliare*, *Disa langleyensis*, *C. niveum*, *Dendrobium Bensoniæ xanthinum*, *Dendrobium Bensoniæ*, and *Odontoglossum crispum*, Walker's var.

Mr. John Robson, Altrincham, presented *Masdevallia Harryanum*, and well-flowered *Odontoglossum crispum*, as well as some other subjects.

Mr. John Rutherford, M.P. (gardener, Mr. John Supton), Bearwood, Blackburn, had a number of choice *Cattleya* and some *Odontoglossum*; while Messrs. Richd. Ashworth, Ashlands Hall, Newchurch, Lancashire, had *Cypripediums*, *Odontoglossum crispum* Black Prince, *O.-c. punctatissimum* Princess Maude, and other choice subjects. Mr. A. A. Peeters, 62, Chaussée de Forest, Brussels, sent *Odontoglossum japonais*, a beauty, and *Cattleya Stepmani*, and others.

Roses.

Messrs. T. S. Ware (1902), Ltd., Ware's Nurseries, Feltham, contributed a variety of Roses in pots, among them being *Dorothy Perkins*, *Helene*, *Rubin*, *Crimson Rambler*, and *Leuchstern*, climbers; as well as *W. A. Richardson*, *Sunrise*, Mrs. John Laing, *Edith D'Ombraim*, *Frau Karl Druschki*, Mrs. Cocker, and others.

Messrs. W. Paul and Son, The Nurseries, Waltham Cross, contributed what was the finest of the Rose groups, and certainly arranged their plants with rare skill. Their plants of *Clio*, a beautiful blush H.P., and also of *Frau Karl Druschki*, *Ulrich Brunner*, *Sulphurea* (Tea), *Niphetos*, *Papa Lambert H.T.*, *Marquis Litta H.T.*, *Climbing Devoniensis*, *Madame Lacharme*, and others were in various sized pots, and all were sturdy, and bore a fine crop of flowers. The climbing varieties were equally meritorious, and included all the finest and newest kinds. Their *Waltham Rambler* (pink and white with single flowers) is of great merit.

Messrs. Paul and Son, The Old Nurseries, Cheshunt, were in their usual position in the large marquee. Their *Carmine Pillar* was excellently seen in a basket at the front, while a large collection of pot Roses gave a groundwork to standards and

climbers. The Wichuraianas as umbrella headed standards were very beautiful; while Blush Rambler seemed even sweeter than Dorothy Perkins. *R. rugosa repens alba*, Helene, and Crimson Rambler are other excellent decorative subjects. Lady Battersea (H.T.) and Frau Karl Druschki were remarked as of merit.

Mr. Charles Turner, Slough, filled the whole north end of No. 5, having a splendid assortment of standard Roses, climbers, and large pot specimens. The vigour and floriferousness of them was conspicuous. The Ramblers were Al, while Niphetos, Souv. de Pierre Notting, Madame Cusin, and Maman Cochet made fine large-headed standards. The H.T.'s and H.P.'s as specimens were very handsome. Hobbies, Ltd., Dereham, were represented by a fine display of Dorothy Perkins Rose, gracefully disposed, and of a fine deep tint.

Mr. Geo. Mount, Canterbury, had an elegant assortment, many of them cut flowers, and including the beautiful Liberty. Messrs. Frank Cant and Co., Braiswick Rose Gardens, Colchester, also contributed a very excellent group, in which were *R. sinica* Anemone, Perle des Jardins, Liberty, Bridesmaid, Madame Hoste, Sunrise, Frau Karl Druschki, Sneewittchen, a white polyantha, and a host of fine things.

A huge vase of Roses was sent by Leopold Rothschild, Esq. (gardener, Mr. Jas. Hudson). The variety was Conrad F. Meyer, a pink *Rosa rugosa* hybrid, a well-known garden Rose splendidly staged.

Foliage Plants.

Messrs. J. Laing and Sons, Forest Hill, sent a nice table of Caladiums, which included plants of B. S. Williams, Alexander III., Mrs. Joicey, Candidum, Easton Shandon, and Flambeau, also a fine table of double and single Begonias. The singles were particularly good, while the doubles contained some good varieties, such as Lady Jeune, Colonel Peacock, Lady Donaldson, and Lord Alverstone.

A large table of foliage plants was contributed by Mr. L. R. Russell, Richmond, the Alocasias being a fine feature. Crotons, Dracenas, and Caladiums were also good, the colouring of the whole group being most attractive.

Messrs. J. Hill and Son, Barrowfield Nurseries, Lower Edmonton, also set up a fine group of ferns chiefly of the decorative size. A few of the best were *Pteris binoti*, *Nephrolepis Fosteri*, and *Adiantum Moorei*, while a few large specimens occupied the background.

Mr. L. J. Draps-Dom, Laeken, Brussels, sent a new Croton, Souvenir de Laeken, a fine pale variegated form, and a well coloured plant of *Dracæna Victoria*.

Messrs. W. Bull and Sons, Chelsea, had a nice group of choice foliage plants, which were nicely displayed. The Dracenas included a fine plant of *Victoria*, Reidi, Lord Roberts, and Lord Wolseley. Aralias in variety, Caladiums, palms, and ferns, constituted the other chief items of this exhibit.

Messrs. Jas. Veitch and Sons also made a fine exhibit of stove plants, which were chiefly specimens of the foliage section. The Crotons included Sunbeam, Warreni, Sunshine, Thomsoni, and Nestor. *Dracæna Goldieana* was also excellent. Caladiums were also largely represented. The plants were beautifully coloured, a few of the best being Duchess of Teck, May Archer, Baron de Rothschild, and Rose Laing. *Nepenthes* were also in great force. The chief flowering plant was a fine plant of *Medinilla magnifica*, while *Anthuriums* were to be seen in variety. The whole group was beautifully displayed with a variety of decorative plants.

Caladiums are a well known speciality of Messrs. J. Peed and Son, West Norwood, and on this occasion the firm fully carried out their reputation. The plants were nicely arranged and well developed. The chief varieties were Golden King, Icaris, Silver Cloud, Candidum, Oriflamme, W. E. Gladstone, Rose Laing, Duke of Teck, Argentine, Mrs. H. Veitch, and Arassuby. The group was finished off well with palms, ferns, and other suitable foliage plants.

Mr. A. J. Bruce, Chorlton-cum-Hardy, made a grand exhibit of *Sarracenias*. The plants were beautifully developed and in great variety, making a pleasing change in the tent. A few of the most conspicuous were S. Fielderi, S. Patersoni, S. Mooreana, S. Mitchelliana, and S. Chelsoni. Excellent plants of *Dionæa muscipula* were also displayed.

The Ranelagh Nurseries Co., Leamington Spa, contributed a table of foliage plants, the chief feature being *Asparagus myriocladus* in various sizes, while Dracenas, Crotons, and other decorative plants were tastefully employed.

Indoor Flowering Plants.

One of the most interesting displays is the floral exhibit staged by Messrs. Sutton and Sons, the King's seedsmen, Reading. This exhibit occupies the handsome pavilion erected specially for its accommodation, both last year and this year, by sanction of the Master of the Temple, the Hon. Sir W. Grantham. There are groups of *Gloxinias*, *Begonias*, *Calceolarias* and *Cineraria stellata*. The range of colour is unrestricted, and plants could not be healthier or more floriferous. Sutton's *Calceolarias* are always grand, but perhaps they are finer and more varied now than ever. The plants are dwarf, and the reflexed foliage completely hides the pots. Of *Gloxinias*

the white variety, Her Majesty, is absolutely pure, the spotted hybrids are extremely attractive, and the beautiful coloured *Gloxinia* Duchess of Connaught at once catches the eye. The batch of *Cineraria stellata* is most striking. The Star *Cineraria* has become deservedly popular, both as a pot plant for the decoration of the conservatory as well as for cutting. It is worthy of note that the whole of this brilliant floral display has been grown in Messrs. Sutton and Sons' new range of glass houses at Reading.

As usual, Messrs. James Carter and Co., seedsmen to H.M. the King, occupy a large portion of the central space of tent No. 1, where their display exhibits the usual fine features. This year this well-known firm give great prominence to their grand strain of *Gloxinias*, which for size and beauty of flowers seem to deserve the description given them as Carter's Invincible Prize. The colourings embrace every delicate shade, while some are of the richest hues that defy description. They also exhibit their Victoria prize strain of *Calceolarias*, the flowers of which must be quite double the size one was accustomed to see a few years since. We also noticed a fine group of *Cineraria*



Mitraria coccinea. (See page 468.)

stellata, from the same collection which Messrs. Carter were awarded a special gold medal at the Royal Botanical Society recently. Enormous *Petunias*, dainty *Carnations*, and a remarkably well planted rockery covered with all sorts of pretty alpine was the centre of great attraction. Messrs. Carter also exhibit a large collection of their improved types of vegetables, all showing a high state of selection and cultivation. They also staged some fine examples of the peculiar dwarf Japanese trees which have become so popular in this country the last year or two.

Messrs. R. and G. Cuthbert, Southgate, arranged a grand group of hardy Azaleas, with suitable foliage plants. The group was boldly arranged in large mounds, with a freedom seldom seen in such displays. The colours were admirably blended. The standards employed, too, were most effective. The mollis type was represented by Hugo Koster, Dr. Reichenbach, Comte de Quincey, Anthony Koster, and Dr. Leon Vignes. The Ghent varieties were also conspicuous, Pallas, Unique, and Fanny being the best. The Rustica section was also largely represented. Needless to say, all the plants were perfect masses of bloom.

Messrs. Geo. Jackman and Son, Woking, had a grand exhibit of Clematises, which were arranged with Acers, ferns, and other foliage plants. The chief varieties were Jackmani Rubra, Queen Alexandra, Mrs. Hope, William Kennett, Fairy Queen, Beauty of Worcester, Mrs. Geo. Jackman, Belle of Woking, King Edward VII., Grand Duchess, and Nelly Moser.

Messrs. H. Cannell and Sons, Swanley, exhibited a gorgeous display of Cannas in the large tent. The group was possibly Messrs. Cannell's best effort with this plant, the heads of bloom being enormous, while the collection was most varied.

A few of the most conspicuous varieties were Elizabeth Hoss, Niagara, J. B. Van der Schoot, Black Prince, Jean Tissot, Ami Beney, and Papa Crozy. Altogether a charming display. Messrs. Cannell also contributed a fine display of Gloxinias, arranged in colours, with Maidenhair ferns; also a few double Begonias and a large collection of Cacti. The latter was a fine collection, and created a great amount of interest, if one may judge by the crowd surrounding them, the King also passing a remark upon them.

Mr. W. Iceton, Putney, staged a superb exhibit of Lily of the Valley in boxes, backed with bamboos, palms, and ferns.

Messrs. Webb and Sons, Stourbridge, staged a fine strain of Calceolarias of the herbaceous type. The plants were dwarf and well spotted, while the colours were most varied. Gloxinias were also staged to exhibit the strain, which was undoubtedly a good one. From Messrs. Webb and Sons also came a nice group of Cineraria stellata. The plants were large and the colours most varied, noting clearly an excellent strain.

A nice group of herbaceous Calceolarias and Streptocarpus came from E. Acherson, Esq. (gardener, Mr. J. Pitts), Pett Place, Charing, Kent. The plants were well grown and nicely staged.

A novelty in the large tent was provided by Mr. Leopold de Rothschild (gardener, Mr. J. Jennings), in the form of a group of standard zonal Pelargoniums, all scarlets of varying shades. The effect of the plants was, however, lost by the bank-like arrangement. They were fine specimens, well grown, and with different treatment would have been more effective.

Messrs. R. Smith and Co., Worcester, made a fine exhibit of Clematises, backed by a few plants of Crimson Rambler Roses. The Clematises were all specimen plants, and nicely developed. The double varieties were represented by the Countess of Lovelace and Enchantress, while the single forms included well grown plants of Lady Caroline Nevill, Gloire de St. Julien, Excelsior, Sensation, Mrs. George Jackman, Madame Van Houtte, and Fairy Queen.

Messrs. W. Cutbush and Son, Highgate, occupied their usual position in the large tent with a miscellaneous group of flowering plants. Carnations and Roses were, however, the leading features. In the Roses, tall plants of Dorothy Perkins were most effective, while the groups of Carnations were not only well grown, but nicely displayed. The best varieties were Duchess of Westminster, Lord Rosebery, Princess of Wales, Sir Chas. Freemantle, Princess May, and Baldwin. Verbenas in variety, Calla Elliottiana, Azaleas Anthony Koster, and Mrs. A. Koster were other noteworthy features. The arrangement was admirable, while a thick screen of palms and other foliage made a pleasing background.

From Messrs. Jas. Veitch and Sons, Ltd., Chelsea, came a large display of flowering shrubs, which were carried to the eaves of the tent. Rhododendrons formed the chief feature, for the plants employed were large and well flowered. The most conspicuous were Sigismund Rucker, Fatuosum fl.-pl., Marchioness of Lansdowne, Doncaster, Mrs. Holford, and James Marshall Brookes. Giant spikes of Eremuri, such as E. himalaicus, E. robustus, Elwesianus were also noted, while Moutan Pæonies, Hydrangeas in variety, Magnolia parviflora, Azalea rosæflora, Clematises Sensation and Madame Le Coultre, and Celmisia coriacea were all splendidly represented.

Rhododendrons came in great force from Messrs. John Waterer and Sons, Ltd., Bagshot, arranged with Acers. They were very effective. Pink Pearl attracted the most attention, for the plants were large, and carried enormous heads. Other noteworthy varieties were Kate Waterer, Mum, Lady Eleanor Cathcart, Strategist, Viscount Powerscourt, and Cynthia.

Mr. L. Gwillim, Cambria Nursery, New Eltham, made a display of double and single Begonias, arranged in Maidenhair ferns. The quality of the blooms was good.

Mr. John R. Box, West Wickham, was represented by a good table of Begonias, chiefly doubles, the most prominent varieties being Ethel Sparshot, Midas, Mrs. J. R. Box (a grand white), Miss Ivy Holtham, Bernice, and Samuel Pope.

Messrs. Blackmore and Langdon, Twerton Hill Nursery, Bath, had an excellent display of double Begonias, which were not overcrowded in any way. The most striking varieties were Ami Peters, Mrs. G. F. Hodder, Lady Curzon, Avalanche, Madame A. Patti, and Pollie.

Double Begonias were staged by Messrs. B. R. Davis and Sons, Yeovil. The plants were dwarf and compact, the white varieties being most conspicuous. The best were The Bride, Liberty, Constance, San Toy, Vega, and Eileen.

Messrs. J. Peed and Son, West Norwood, made a pretty group of named Gloxinias, arranged with Maidenhair ferns and Asparagus. The blooms were very fine, and the colours most distinct.

Messrs. T. S. Ware, Ltd., Feltham, certainly produced the most novel display in double Begonias, some of the colours being quite novel, Imbricata being exactly like a Camellia. Mr. W. H. Edwards, Mrs. Jas. Portbury, Miss Jessie Pope, Duchess of Connaught, Golden Empress, Mr. W. L. Ainslie, John Morris, and Dr. Schelmerdine, were also grand varieties. The exhibit denoted most clearly the advance being made in the Begonia.

Messrs. W. Balchin and Sons, Hassocks, Brighton, had a fine

table of plants, chiefly of the hardwood section. The centre was occupied with a charming group of Leschenaultia biloba major in the pink of condition, flanked on either side with large plants of Boronia leptophylla and B. elatior. Erica propendens was also noticeable. Scutellaria mocciniana and Richardia Elliottiana also formed features, while the general arrangement left little to be desired.

A varied group came from Mr. H. B. May, Upper Edmonton, half of which was composed of ferns and foliage plants. The other half consisted of Roses and zonal Pelargoniums. Needless to say the ferns were well grown, the Pterises being especially noticeable. The best of the zonal Pelargoniums were Lord Kitchener, Gabriel Monod, Mrs. H. B. May, and Fire Dragon.

A pleasing display was that staged by Messrs. B. S. Williams and Son, Upper Holloway, which consisted of Rhododendrons in variety, Ericas Cavendishi, E. magnifica, E. Spenceriana, and E. candidissima. The Boronias were well flowered, and the whole exhibit tastefully arranged with foliage plants.

Mr. A. F. Dutton, Bexley Heath, displayed large vases of Carnations grown with long stems. The best varieties were Mrs. T. W. Lawson, Fair Maid, Harry Fenn, Queen Louise, Norway, Gov. Roosevelt, and G. H. Grane. Mr. Dutton grows huge quantities for market on the American bench plan; and certainly gives a lead to any English grower.

Rhododendrons in a cut state and exhibited in baskets, came from Messrs. W. Paul and Son, Waltham Cross. The collection was most varied, a few of the best varieties being Sigismund Rucker, Paxtoni, Michael Waterer, Sappho, Pink Pearl, and The Queen.

Mr. H. J. Jones, Ryecroft Nursery, Lewisham, contributed a large display of flowering plants, which included well grown plants of Verbena Miss Willmott, single and double Begonias in good form, some excellent Sweet Peas, in which were noted Scarlet Gem, Miss Willmott, Coccinea, Prima Donna, Hon. F. Bouverie, and Dorothy Eckford. The Zonals were well displayed, and formed a fine collection, as did also the collection of decorative Pelargoniums. A large vase of Carnations and a few plants of Potato Eldorado completed the display.

Messrs. W. and J. Brown, Stanford, Peterborough, staged a miscellaneous table of plants and cut flowers. Heliotropes, Verbenas, zonal Pelargoniums of the new Cactus type, and Carnations formed the chief part of this exhibit.

Messrs. J. Veitch and Sons, Ltd., Chelsea, had a large display of Streptocarpi, which were arranged in blocks of colour. The white, red, and rose shades were remarkable. A good strain of Schizanthus wisetonensis was also noted. Lobelia tenuifolia and Rehmannia angulata likewise attracted great attention. A collection of Phyllocacti found many admirers, a few of the best being Adonis, Nerida, Marsus, Favourite, and Grand Monarch.

A grand group of Streptocarpi came from Lord Aldenham (gardener, Mr. E. Beckett), Elstree. The plants were grown in large pots, carrying foliage about 18in long, and of the most healthy type. They were well flowered, and the colours most striking. A table of Streptocarpi hybrids and Gloxinias were staged by Messrs. J. Laing and Sons, Forest Hill; while a fine group of Calla Elliottiana was staged by Mr. N. L. Cohen, Bound Oak, Englefield Green (gardener, Mr. Shirt).

Messrs. Paul and Son, Cheshunt, had a most interesting display of Lilacs, flowering shrubs, and other hardy plants. The Lilacs included Madame Lemoine, Souvenir de L. Späthe, President Carnot, and President Grevy, Pæonias, Weigelas, Lonicera Hildebrandti, &c., were seen.

Alpines and Rock Plants.

Mr. G. Kerswell, Bowhill Nurseries, St. Thomas's, Exeter, set up a large basket of Gentiana acaulis in good form. The plants are evidently very much at home at Exeter.

From the Guildford Hardy Plant Nursery came an exhibit of rock and alpine plants arranged naturally without any overcrowding. Gentiana verna, Saxifraga longifolia, Aster alpinus, Phlox canadensis, Cyripediums in large variety, with Primula japonica and Silene alpestris combined to make a good exhibit.

Messrs. J. Cheal and Sons, Crawley, also made an extensive display of rock and alpine plants. The chief features were a new Lupinus called rosea, which is certainly a new colour. Primula japonica, and some fine plants of Saxifraga pyramidalis, and a variety of dwarf growing plants were in evidence. The Craven Nursery, Ingleborough, Clapham, Lancaster, made a display of Saxifragas, also Edrianthus serpyllifolius (with lovely violet flowers), Cyripediums, Primula farinosa, and Sedum spathulatum, &c. Mr. H. C. Pulham, Eisenham, Essex, made a nice exhibit of hardy rock and alpine plants, which was also tastefully arranged. Another fine display of hardy flowers was set up by Mr. B. Ladhams, Shirley, near Southampton, the Pyrethrums, Papavers, Anemones, and similar flowers forming the chief features.

Messrs. Backhouse and Son, York, staged a nice collection of alpines arranged naturally. The effect produced was charming, but owing to the press of the people it was impossible to take notes of the different subjects. The group was well backed with suitable conifers.

[Continued on page 477.]



Strawberry Louis Gauthier.

Some time since reference was made to this so-called perpetual Strawberry, and inquiries made for opinions on its merits for pot purposes. Until last year it was to me a stranger except by name, but calling on a neighbour when the Strawberry season was practically over, I was agreeably surprised to find a bed of these pale-skinned fruits in full season. Certainly they were uninviting as regards colour, but a trial of the flavour dispelled at once the unfavourable impression gained by cursory review. Their lateness, combined with freedom, gave rise to a passing thought, Would they force? and the action prompted by the thought has justified itself in a manifold way. Not only have they responded well to the conditions imposed upon them grown in pots, but they have given a heavy crop of berries, which impart quite an aspect of novelty as a breakfast fruit. I have no experience of it as a market Strawberry, but remembering how favoured is deep and bright colour to those who purchase their supply, it would be no wonder if they failed to elicit the good opinion they have gained in the private garden. So many who have seen the ripe berries depending from the pots fail to realise their matured state, and even to those who have grown accustomed to them there rises a doubt in the mind as regards their fitness or unfitness for the table. They are called White Strawberries, but there is on the ripe berries a pale flush of pink radiating from the seeds. Should prejudice be overcome as regards colour, this Strawberry may soon gain a better position with grower and consumer alike.—W. S.

The Rain and the Fine Crops.

The weather has of late been in a particularly happy mood. Rain was badly wanted just before the popular Bank-holiday, and thousands upon thousands were fervently hoping it would not come until after the holiday, while quite as great a number hoped it would come at once to moisten the hard surface soil. For once quite a delightful compromise seems to have been effected, which ought to have pleased everybody, for the rain came just before the great play day, and banished for a time the nuisance of dusty roads, gave vegetation on every hand that rich verdant freshness which shows the country at its best, and thus enabled the holiday-makers to enjoy themselves to the full throughout a glorious day.

Since then we have had several showery days, alternating with fine ones, and to-night, as I write, heavy thunderstorms occur at intervals. The main feature of the rains of the past week, however, has been the steadiness with which they have gradually permeated the soil, and as there has been no particularly bright sunshine between to draw out the moisture again, every drop which has fallen has done the maximum amount of good. The soil is now thoroughly moistened, and on the return of sunshine will work wonders with advancing crops. Indeed, much good has been done in this direction already, for the progress made in grass fields during the last week is little short of marvellous.

In regard to garden crops the early Peas and Beans are going ahead in a way which will gladden the hearts of all interested; and the occupants of seed beds of all descriptions are showing their appreciation of the genial showers. Early Potatoes are rushing ahead, and late ones, which were somewhat tardily pushing through the soil, are now each day forming bolder lines with their sturdy, green tops. One advantage of the fine, settled weather of mid-spring was that cultivators had abundant opportunities for working the soil so as to keep weeds in check during the early stages; but owing to the rapidity at which the soil dried—after having been sodden so long—it has till now been generally somewhat lumpy. The hoes should, therefore, be again set going at the earliest opportunity where the surface is fairly dry. The lumps will then crumble to powder, and a grand, friable tilth be obtained.

It is almost impossible to overestimate the beneficial effects of the rains on fruit trees. Before it came, aphides were gaining a firm foothold on Plums and Pears, and had it continued unchecked, would have caused hosts of fruits to drop, and leaves to curl badly. Millions of the pests have now been cleared off, the trees invigorated and freed from blossoms which failed to set. Good crops of nearly all kinds of fruit seem now assured. The Plum crop, as a rule, will be heavy, but in a few districts the bullfinches played such havoc with the buds in early spring as to cause a complete failure. Strawberries should be quite a phenomenal crop, and Apples and Pears very abundant. I have seldom seen that fine wall Pear Jargonelle set so abundantly—on standards and pyramids—as it has done this

year. A few others which are cropping well on trees of the latter form are the following:—Marie Louise d'Uccle, Williams', Thompson, Louise Bonne of Jersey, Souvenir du Congrès, Doyenne d'Été, Beurré Clairgeau, Beurré Diel, Durondeau, and Josephine de Malines.

Among Apples, those varieties noted for their good cropping qualities are generally loaded with young fruits, and such choice, yet sometimes shy bearers, as Cox's Orange Pippin and Blenheim Orange, will once more yield a good harvest. And we may look forward to an autumn time when fruit rooms will again be packed with their delicious treasures.—H. D.

Canker in Apple Trees.

Allow me to ask fruit-growing readers, and particularly those who grow upon a large scale, whether they have noticed, as I have, an extraordinary development of canker in Apple trees, as a legacy of the last wet season; also whether they find in their experience that King of the Pippins is more liable to canker than most other varieties.—SOUTHERN GROWER.

The Laxton Strawberry.

Not much has been written of this modern Strawberry with respect to its merits for pot culture. Messrs. Laxton have not, I believe, recommended it for forcing purposes, but it is only to be expected that those who do possess a stock would give trial to a few pots, if only to compare results with the older established Royal Sovereign. I have only met with The Laxton in one instance grown this year in pots, and my own impression and that of the grower certainly was not in favour of taking up its culture for spring work. In this instance it had been but gently forced. There was a lack of the freedom of Royal Sovereign grown under exactly similar conditions, and in comparative weight pot for pot, the older sort was much the better. True, there was a distinctness of character in the berries that made them conspicuous on the plants, hanging over the sides of the pots their elongated form and deep colour at once arresting attention. Under pot culture there was a marked difference in their maturity compared with Sovereign, the latter being some days quicker in its ripening. The length of the berries would presumably require a day or two longer to allow the ripeness extending to the tips, and the deep red colour of normal fruits also requires time to develop. It is unfair to judge a new Strawberry or any other fruit by one sample, but as the Strawberry forcing season is fast closing in, there will be some among *Journal* readers able to give an opinion derived from a wider experience.—ASTON.

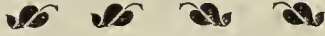
The Gardeners' Association.

With reference to this very desirable matter, I beg to say a few words relative to the difficulties which, to myself, stand insuperable in the way of the success of the proposed scheme. I cannot think, at the same time, that the difficulties I am about to submit are altogether unknown to the framers of the scheme. The most important point, I think, in the matter lies in the question, "How far does the employer consider it imperative to employ gardeners at all?" The fact of the matter is, it is not imperative to do any such thing on the part of any proprietor, squire, or landowner. We all admit, however, that, though none of these are obliged to employ garden labour, in doing so they certainly contribute greatly to their own comfort and pleasure generally.

There is no reason why the amount of comfort and pleasure derived from gardening could not be received from other sources, equally satisfactory, and with less expense. The art is very much the foster child of fashion, and necessarily is subjected to all the caprices of that fickle dame. To-day Lord So-and-So employs his thirties or forties of trained gardeners; to-morrow you hear a misfortune on the turf has converted his establishment into a market garden. What do we learn from this state of matters? Is it not that gardening, after all, is little more than a stupendous waste of money? or at all events something that adds practically nothing to the national wealth? (!!!). Other trades—masons, joiners, &c., by their labour contribute wealth, and their demand for reasonable wages cannot be ignored, just because their service cannot be dispensed with. It is very natural—nothing in the world more so—for gardeners to think that their avocation is a very important one, but it is absurd to place it in the same rank with any of the utilitarian trades referred to. Gardening stands among other trades and professions practically on the slender policy of tolerance. The fulcrum upon which the whole fabric rests is so unstable, so uncertain, so mutable, that when any force is applied to the lever itself, the result may end in complete disaster. I am no pessimist, but I can never hope that much good is to be done to gardening by the application of external force. Virtually the thing is ridiculous. Though the 10,000 odd qualified gardeners of Britain struck work to-morrow, what should that matter? None would suffer but the men themselves. Labourers would meet the requirement.—ALFRED.

Bowood, Calne, Wiltshire.

THE SEAT OF THE MARQUIS OF LANSDOWNE.



THE chalk downs are so characteristic of Wiltshire, that the popular notion of that county is one vast Salisbury Plain. But this, like other rapid generalisations, needs considerable modification. There are two great natural divisions of the county, the one chalk, the other more or less Oxford clay, which is the character of the land throughout the north-western parts. In my notes on Captain Holford's garden, and on the scenery and some of the characters of the surrounding country, the Cotswold Hills were, of course, mentioned, and spurs of these breezy elevations penetrate the surrounding counties; and the North-western Valley of Wiltshire descends from an outlier of the Cotswolds, being definable by the course of the river Avon, into which its waters drain. Affluents of the Avon are numerous, and one of the most important is the Marden, a stream which gathers contributions from the western slopes of the Marlborough Downs, communicates with the lake at Bowood, and flows by Stanley Abbey. The Avon—which we thus particularly notice for the introduction which it affords us to some towns and homes of special interest in its route—flows by Chippenham, Lacock Abbey, sleepy Melksham, Broughton Gifford, Whaddon, and onward, out of Wiltshire near Freshford. The stream, strongly coloured by the alluvial deposits through which it eats its way, flows in its higher courses between meadow banks; the reaches now straight, now winding; the volume of water, the dipping Willows, and bulky Elms by its side; the banks gay with purple Loosestrife, Bulrushes, and broad Flags; the level meadows dotted with large dairy cows, grazing beasts, and a few sheep; the gentle slopes which lead the eye to the distance beyond—on the right hand to the off-shoots of the Cotswolds, on the left hand to the barrier of naked downs; the mid-landscape on either side consisting of different farm homesteads, factory chimneys, and church towers, reminding of the business of this life and the happiness of a better—

In the mixture of all these appears
Variety that all the rest endears.

Murray points out that the best parts from which to see this North-western Valley are at Liddington Castle, the descent of the road near Chiseldon, Barbury Castle, and the road above Cherhill, or Roundway. Spye Park, of horticultural note, and adjoining Bowood estate, together with Monkton Farleigh, are the two finest positions in North Wiltshire, and command the most beautiful part of this valley from Lacock to Bradford, and during a cycling tour in certain districts in Wilts and Gloucester in the early summer of last year, it was a delightful privilege to see and note the features which these notes delineate.

The Marquis of Lansdowne's seat at Bowood is $3\frac{1}{2}$ miles south-east from Chippenham, and 2 miles south-west of Calne, the post town. The mansion itself is Italian in its style of architecture, and is surrounded by its own extensive and greatly varied gardens, parks, and woods, in all of which the noble owner takes a keen, personal interest. This might at first be thought unlikely, considering the highly responsible Cabinet position which his lordship so well adorns; but I was assured that the details of the estate management and of the gardens are not overlooked, it being a recreation, doubtless, to one whose mind is otherwise so critically taxed. Bowood is said to owe many of its most interesting associations, as well as much of its beauty, to the distinguished third Marquis of Lansdowne, who died in 1863, who not only enlarged and embellished the ornamental grounds and filled the house with a noble collection of pictures, books, and various works of art, but made it the hospitable resort of those who were distinguished in science, literature, and art; and the present Marquis has continued the development.

The Principal Entrance.

The principal entrance of the park is from Chippenham, by an arched gateway flanked by a tower. The drive to the house is nearly two miles through luxuriant woods, an occasional view being obtained of Lansdowne Column and the White Horse cut

on the slope of the Cherhill down, which is also visible from places in the garden.

The principal front of the mansion, with a Doric portico, faces the south, and attached to it is a long, low wing, containing a conservatory opening on a succession of terraced gardens, a view of which is given on the opposite page. This was built in imitation of a wing of Diocletian's Palace at Spalato. The view from these terrace gardens is exceedingly beautiful; the lake winding through the woods; the ferry to the pretty temple just peeping through the trees; the prospect over the forest upland to the purple hills of Roundway and Beacon Down. The lake also contains an island with a heronry, and terminates in a cascade, which, tumbling over mossy stones, very fairly represents the variety, grace, and abandon of Nature. The cascade is regulated by means of a powerful sluice, and the escaping water afterwards flows on as a tranquil meadow stream. The whole lake was formed artificially by banking up one end of the broad defile.

The park derives its beauty from the undulations of the ground, its boundary including as many as nine distinct valleys, hill and dale being intersected in every direction by green roads. Bowood in early times formed part of the Royal forest of Pewsham, which adjoined that of Chippenham, and the estate was purchased by John, Earl of Shelburne, father of the first Marquis; it having belonged to the crown till the reign of Charles I.

Lord Lansdowne's Improvements.

One chief alteration instituted in the gardens by Lord Lansdowne has been the erection of fresh ranges of plant houses, seed-room, and offices, and a really pretty and very well-arranged bothy, of which a figure is also given on another page. The plant houses are erected on a level terrace within the area of the walled kitchen and fruit garden, and from first to last the plans were carefully thought out, so that the drainage of the ground and the heating and sequence of the houses might be correct and convenient. The ground is terminated by a sloping grass bank at the lower end, the top ridge being planted with a Yew hedge. Messrs. Mackenzie and Moncur, Ltd., were the builders. The vineries and peacheries are hip-span structures of considerable length, while facing them are the new pits and houses, the latter 20ft broad by 30ft long, and each separated by narrow beds for flowers, and some grass plots. All of the structures are heated from one boiler, or a double boiler in winter. The ground covered by the various plant-pits and houses covers just over an acre.

The stove contained a collection of Crotons, Phyllanthuses, and an assortment of small decorative plants for winter furnishing; while in the greenhouse we recall to mind the vigorous Carnations, Winter Cheer being particularly bright, along with the zonal Pelargoniums, Astilbes, Swainsonia galagæfolia, and a noticeable feature was the beautifully pure white strain of Primula obconica. Gladiolus The Bride is cultivated in large pots; and the blooms of Carnations sent to the town house during the month prior to our visit amounted to hundreds. A structure is, in fact, devoted wholly to Carnations. Close by the terrace on which the houses stand there is a border on higher ground, which is backed by a wall containing Pear and other fruit trees. This border is warm and sheltered, so that its advantages are utilised for Irises and Tulips in spring, with seasonable flowers to follow, and at all times there appears a sweet display.

Plant Pits.

The propagating pits are 8ft broad, and have top ventilators worked by a screw, the sashes being fitted with a notched bar underneath, so as to be raisable by degrees. Melons are successfully grown, and the varieties Windsor Castle, Ringleader, Royal Favourite, Sutton's Al, Best of All, and Hero of Lockinge were noticed. Cyclamens, Gloxinias, ferns, and other plants are grown in these pits, and elsewhere we noted Begonia Gloire de Lorraine—an excellent display; together with the old Ruellia macrantha in the form of fine bushy plants, and an admirable collection of ornamental foliaged Begonias. Kalanchoe flammea is also made good use of, and the scented leaves



The Italian Garden, Bowood.

of *Humea elegans* drew one's notice to a nice batch of young plants. These little pits are utilisable also for bedding plants, for Violets, for forced French Beans, Carrots, Lettuces, Potatoes, and Strawberries. They are the feeders of the "show" houses, and a purpose can be found for them at all seasons. Their height is only 5ft, the wood framework resting on a foundation of six or eight tiers of bricks. A 2in hot-water pipe runs round the inside cement edge of the structures, and a drain is laid the whole length of the centre. Francoas, Oleanders, scented Pelargoniums, and Azaleas were also included in the pits.

The walls of the garden are wired; the edges of the paths are of stone, and beds of Carnations, Irises, Daffodils, and Wallflowers appear in parts, while the lines of seedling Sweet Peas, and beds of Strawberries told of dainties for a later season.

Just outside the garden walls is the new bothy, which has a good kitchen, bathroom, and each of the six journeymen has a separate bedroom, while the foreman has a large private room. A messroom is provided, and hot and cold water is laid on. There is a washing place near the entrance, and a wide corridor passes by the bedrooms. The building is of red bricks, one storey high, with ridge-tiled roof, and has a pretty entrance porch. When the wail trees and the climbers become better developed, and also after the Yew hedges have grown up, this will be an ideal little residence where the men can spend their evenings comfortably in reading or in quiet recreation.

At the back of the vinery wall are the store sheds for tubers, bulbs, Potatoes, &c., and the Mushroom house (in which Rhubarb is also forced) is here as well, while the two powerful boilers are in the same line of buildings. These were fixed by Mackenzie and Moncur, Ltd., and possess a mechanical automatic appliance for the ejection of a spray of water upon the fire to damp it, and so prevent the generation of too much steam in the boiler and pipes.

The Italian Garden.

Removing now to the mansion itself, and to the Italian garden on the west side thereof, we find that it occupies a terrace some 285ft in length, with formal flower beds, and having a double cordon of columnar Irish Yews between the beds. Above it is a second terrace running along the front of the orangery, supported by an ornamental wall which is relieved by tazzas. The walls are covered with Banksian Roses that flower freely; with Clematis montana, Magnolias, and other climbing shrubs. The house has a private chapel on this side, and the front entrance with its massive rounded pillars and porch, is handsome indeed. On either side of the steps between the terraces, there rests the form of a noble stag in sculpture, which features can be seen by looking specially into the illustration to which attention has already been drawn, and it will also be seen that there are two marble fountains on the upper terrace.

The Lake and the Woods.

The extensive lake and the magnificent woods meet the view looking forward from the terrace; but there are other flower gardens at each side of the house and close against it, these leading by appropriate walks to the main garden. A pretty little corner for flowers, and furnished also with a sun-dial, has been made at the entrance to the private apartments of Lord and Lady Lansdowne. Since Lord Lansdowne's return after his long absence as Governor-General of Canada and Viceroy of India, he has made very extensive alterations and improvements in the gardens and pleasure grounds. The new glass structures have been referred to, and along with these have been built fresh garden walls in parts, and we recall a very charming gate in the garden wall near the east side of the house. Belts and plantations of choice flowering and foliage shrubs have recently been planted, and one might name a few of the subjects employed, as being partly a guide to others who contemplate similar additions. Altogether there are forty acres of grounds and lawns, which necessitates at least one machine mower being constantly at work during the summer. One of the most apparent and delightful features of Bowood consists in the long stretches and intervening glades of lawn, and the charming vistas which penetrate for long distances toward the surrounding parks. And at the present season of the year the floor of the woods is entirely covered with a sea of English Bluebells.

Flowering Shrubs and Conifers.

Rhododendrons grow luxuriantly, and many choice hybrid varieties adorn the policies. Crimson Rambler Rose appears in some of the shrubberies, and where the conditions agree with it, this subject makes an admirable feature. "Bamboos" do well; and in the general list of shrubs might be named *Pyrus salicifolia*, *Staphylea colchica*, *Cytisus alba* and *C. præcox*; *Choisya ternata*, *Akebia quinata* (flowering on a wall), and *Fabiana imbricata* (also on a wall).

Conifers flourish, and the collection includes some handsome

trees. The Scots Pine, of which there are some tall and rugged specimens, is Lord Lansdowne's favourite tree. We noted a *Cedrus atlantica* quite 80ft in height; and a Swamp Cypress (*Taxodium*) 40ft, the Deodar also appearing in noble mien. Bays, Hollies, Beeches, and Yews are interspersed, and indeed the stately Beeches by the lake are a sight which will long afford a pleasant memory. The Chilean Pine or Monkey Puzzle is in handsome form, while *Sequoia sempervirens*, or Redwood, attains a loftiness of 80ft. Other notable evergreens there are *Cupressus Lawsoniana erecta viridis*, 35ft; the *Wellingtonia*, as high as the Redwood; *Pinus ponderosa*, 50ft to 60ft; *Juniperus phœnicea* forming fine dark plume-like masses, and varying from 14ft up to 25ft; *Abies* (or *Picea*) *Menziesi*, more beautiful here than at any other place I remember, possessing as it does a character of distinctive gracefulness. The *Cedrus Deodar*, also with its drooping apical branchlets, stood close by *Menzies' Fir*. *Abies grandis* is dark and of another type entirely, and again in the pretty *Juniper recurva*, what individuality we have! This tree—the one we note—was planted by the late Mr. John Spencer so far back as 1838.

Thuopsis dolobrata makes a good leader, and has attained to 12ft; and from this moderate height one's eyes travel upward 60ft in the visual enjoyment of the glaucous form of *Cedrus atlantica*. The leaflets in this case were of a specially light and silvery hue. *Abies orientalis* is dark and feathery, and *A. cephalonica* furnishes another very stately tree. *Juniperus virginiana pendula* has long slender shoots which droop, and a tree of 25ft to 30ft has a very pretty appearance.

The *Dovaston Yew* spreads widely over the ground like a great round table, and one is forced to meditate on the wonders of the vegetable kingdom and to reconsider the theory of evolution when scanning this curious tree and its ally the common Spruce, rising to 90ft, in the same glance. Judicious contrasts form the very essence of landscape charm, and contrasts are necessary and unavoidable where many genera and species of the same Order of trees are grown together. The planting at Bowood had been well done, and the magnificent trees are objects of special interest now. One of the first of the Douglas Firs brought to this country is at Bowood, and its noble height and heavily laden graceful branches are very imposing. *Libocedrus decurrens* from the Oregon and the Sierra Nevada mountains, attains 38ft to 40ft, and grows erectly with columnar form. *Picea sitchensis* is 70ft, and the beautiful *Picea Smithiana* with tassei-like branchlets, are both good; and a tree of *Pinus insignis*, also very high, dense and vigorous, was referred to as being among the earliest planted in England.

One could mention quite a host of other strikingly handsome trees, or those possessed of some feature of special interest, but it is true that "enough is as good as a feast." The Evergreen Oaks are fine, and are much beloved by the noble owner; nor can we omit to mention three massive Tulip trees, that tops 70ft; and a Hornbeam gives us 100ft in the spread of its branches.

The Garden in Chief.

Bowood is indeed spacious and excellent, and though our notes have generalised, and have hardly particularised, yet can we say as Sir Thomas More said in his "Utopia" long ago, "In the garden they have vineyards, all manners of fruit, herbs, and flowers, so pleasant, so well-furnished, and so finely kept that I never saw anything more fruitful nor better trimmed in any place." Lord Lansdowne's garden is under the direction of Mr. George Brown, an able gardener and lovable man. Mr. Brown has been for 28 years in the service of members of the Marquis of Lansdowne's family, nearly nine years at Bowood, and twenty years at Tullyallan Castle, Perthshire. As a young man he served as foreman in the gardens at Drumlanrig Castle, under the late Mr. James Macintosh, and at Linton Park in the same position under an old and much respected contributor to the *Journal of Horticulture*, the late Mr. John Robson.—J. H. D.

Beauty of *Cercidiphyllum* in Spring.

I have not seen the flowers of the *Cercidiphyllum japonicum* (says Mr. Meehan in the "Florists' Exchange"), but they are said to be small and unattractive. But this must be said of this tree: that without flowers it is very attractive in spring. The opening buds, or young shoots, as they break forth with the warm days of April, are of a lovely pink colour, just as pretty as the flowers of many trees and shrubs are. To-day, seeing a tree of it at a little distance away, the display was great enough to bring me nearer, to see whence the colour came. Then the leaves themselves are pretty the whole season through, having a purplish pink tinge to them which attracts. When writing of this tree a year or more ago, I said it required a damp place to do its best, and I still find it so. At any rate, it will not thrive in a dry place. Where moderately damp all the time, the foliage is much better than when the tree is not suited as to soil and situation. This is a tree which can be well recommended to planters.

Temple Show. (Continued from page 472.)

Hardy Herbaceous Plants.

Messrs. Kelway and Son, Langport, exhibited Pæonies and Pyrethrums. The Moutan section was represented by nice specimen blooms of Marie Corelli, Blanche Noisette, Elizabeth, and Mrs. W. Kelway. The Pyrethrums were beautifully fresh and bright. St. Amant, Rose O'Neill, Warrior, Mrs. Bateman Brown, and Rodney were most conspicuous in the singles, while the best doubles were Captain Nares, Alfred Vance, and Princess Beatrice.

Mr. R. C. Notcutt, Ipswich, contributed an exhibit of hardy flowers, arranged in vases. The chief features were the Papavers, Pæonies, Pyrethrums, Lilac Madame Lemoine and Heuchera sanguinea.

Mr. G. Reuthe, Keston, Kent, had a pleasing display of hardy plants arranged naturally, including *Primula capitata*, *Darlingtonia californica*, *Gentiana verna*, *Cypripediums* in

St. Bridgid type. They also helped to swell the display of hardy flowers by putting up a large display, which included some fine Moutan Pæonias and Papavers. Messrs. G. Boyes and Co., Aylestone Nurseries, Leicester, contributed a display of Carnations in pots, also in a cut state. The plants were well flowered, and the individual blooms were also good.

Messrs. Storrie and Storrie, Dundee, made a good display of alpine Auriculas and Primroses in pots. The plants had travelled well, and the yellow Auriculas were especially good, the best varieties being Venus, Zealot, Leda, Victoria, Sirius, and Clansman. The Polyanthuses were named, and made a bright show.

Messrs. Barr and Sons, Covent Garden, made a very large display of hardy flowers, in which Spanish Irises were tastefully arranged, and formed a good feature. *I. Susianus* was superb; *Ixias* were to be seen in good variety; Anemones, Lily of the Valley, and Gladioli were also in evidence; while a special feature was made of alpine and rock plants arranged naturally. *Cypripediums* such as *acaule*, *parviflorum*, and *montanum* were good throughout. Oriental Poppies, Aquilegias and Pyrethrums



The Gardeners' Bothy, Bowood.

variety, Orchis in excellent form, and a good collection of rock plants. Pansies were arranged in the orthodox style by Mr. F. Hooper, Widcombe Hill, Bath, and were doubtless a good collection, though names were conspicuous by their absence.

Messrs. G. Stark and Son, Great Ryburgh, Norfolk, had a small exhibit of *Viola Royal Sovereign*; while Mr. Jannock, of Dersingham, Norfolk, contributed very excellent Lilacs and Lily of the Valley, the quality quite out of the common.

Mr. M. Pritchard, Christchurch, Hants, put forward a great effort, and in consequence made a fine exhibit. The Pyrethrums included Mrs. B. Findlay, Mrs. Bateman Brown, Vivid, and Hamlet. Large groups of Eremuri were also noted; and Papavers were fine. *Incarvillea Delavayi* and Irises were the other items: a truly interesting display.

Tulips were staged by Messrs. Hogg and Robertson, Dublin, and considering the lateness, they were undoubtedly in good form. A few of the best were Parisian, The Fawn, Isabella, Bouton d'Or, Ixioides, and Bridesmaid. A few vases of Anemones made a pleasing change.

Messrs. R. Smith and Sons, Worcester, had a rather novel exhibit of Spanish Irises, late Tulips, Gladioli, Anemones of the

were also in strong force, while the alpine Auriculas were still to be seen in this display.

Mr. V. Slade, Staplegrove Nurseries, Taunton, had a nice table of zonal Pelargoniums both of the single and double varieties. The flowers were arranged in vases, and created much interest. The Misses Hopkins, Mere, Knutsford, had an attractive exhibit of hardy flowers, in which the pink Daisy Alice was noteworthy. Quaint Polyanthuses, Trolliuses, &c., were well arranged.

Messrs. Dobbie and Co., Rothesay, N.B., had an exhibit of Cactus Dahlias, Violas, and Aquilegias. The Dahlias were useful to display the colours at this season, while the Violas were large and fresh. The same may be said of the Pansies, while the Aquilegias and African Marigolds could not be excelled.

Messrs. W. Cutbush and Son, Highgate, staged an extensive collection of hardy flowers. The Eremuri were well developed, and, backed with bamboos, were most effective. A few trays of Nymphæas were also to be seen. *Cypripediums* in variety, and Orchids were well developed. Liliiums formed a leading feature—Hansonii, elegans bicolor, colchicum, Brownii, and L. Henryi being most showy.

Mr. Jas. Douglas, Edenside, Great Bookham, staged a small group of hybrid *Dianthus* Lady Dixon, a cross between a Sweet William and Uriah Pike Carnation.

Messrs. Gilbert and Son, Dyke, Bourne, Lancs., again made a grand impression with their Anemones, which have so often been described in these pages. King of Scarlets was very much in evidence.

Mr. W. J. Godfrey Exmouth, Devon, had a group of Oriental Poppies in "art shades," that were tastefully arranged with Asparagus and ferns. They created great delight among the ladies present. A few baskets of Pelargoniums of the decorative type were also staged by the same exhibitor.

A most interesting exhibit of hardy annuals came from Messrs. Watkins and Simpson, 12, Tavistock Street, Covent Garden, a few of the most attractive subjects being *Collinsia bicolor*, *Schizanthus wisetonensis*, Matchet Mignonette, *Nemesia strumosa*, *Alonsoa Warscewiczii*, and *Chrysanthemum tricolor* Morning Star.

Sweet Peas were the chief attraction at the stand of Messrs. Jones and Sons, Shrewsbury, and the best bunches were Prima Donna, Triumph, Pink Friar, Lady G. Hamilton, Maid of Honour, Gorgeous, and Salopian.

Messrs. B. S. Williams, Upper Holloway, N., made an exhibit of Tulips, Pyrethrums, Gladioli, Lily of the Valley, Ixias, &c. *Nymphaeas gigantea pulcherrima* were well staged by Miss A. de Rothschild, Aylesbury (gardener, Mr. H. Walters). The blooms were excellent, and the foliage equally good.

Messrs. Reamsbottom and Co., Alderborough Nursery, Geashill, Ireland, set up a fine exhibit of their Anemones. The dull day evidently suited the flowers, for they were wonderfully fresh and bright, the colours being most varied. They were well arranged.

Messrs. Bakers, Wolverhampton, made a nice exhibit of Pansies of the fancy type, and Violas in variety. The best Pansies were Niel McKay, John Miles, J. C. Erskine, and Percy Harrison. In the Violas—Primrose Dame, Rose Noble, Goldfinch, Lark, Emma Sophia, and Ophelia. The exhibit was well arranged with foliage.

The Hon. A. H. T. Montmorency, The Grange, Carrickmines, Co. Dublin, sent two boxes of florists' Tulips, which contained some of the most popular exhibition varieties.

Mr. W. Baylor Hartland, Cork, sent four varieties of late-flowering Tulips, in which Illuminator appeared to the best advantage.

A large and choice exhibit was that set up by Mr. A. Perry, Hardy Plant Farm, Winchmore Hill, N. The large masses of Oriental Poppies were most conspicuous. *Phlox canadensis* Perry's variety, was also much in evidence. Late Tulips, *Cypripediums*, Irises, *Eremuri*, *Dodecatheon hybrida*, *Heucheras*, and *Calochorti* were all to be seen in splendid form. The whole exhibit was well arranged and much admired.

Hardy flowers were also contributed by Messrs. T. S. Ware, Ltd., Feltham, who made the most of their space. The *Eremuri* here were unusually fine. Irises were also well staged, while *Sarracenia flora major*, *Watsonia Ardernei*, and *Saxifraga pyramidalis* were good.

Mr. C. W. Breadmore, Winchester, made a display of Sweet Peas, picked from the open air, from plants placed out in February.

Groups in the Open Air.

At each succeeding Temple Show stronger efforts appear to be made to utilise the green sward for displaying groups of hardy flowering and foliage plants. This year all previous attempts were surpassed, and visitors had the privilege of seeing a really fine flower show without going into the tents at all. This is a departure which might well be extended still further.

A very effective group of flowering and ornamental foliage plants was that set up by Messrs. J. Cheal and Sons, Crawley. Conspicuous in it were standard Wistarias, Rhododendrons, Lilacs, and *Azalea mollis*, interspersed with Japanese Maples in variety, and other trees and shrubs. The plants were pleasingly arranged, and the effect was striking.

Messrs. Fisher, Son, and Sibray, of Sheffield, made quite a large display, and arranged their plants in an effective manner. Rhododendrons were largely represented, as also were Acers in variety. An effective group in the exhibit was formed of *Dimorphanthus mandshuricus aurea variegata*. Azaleas were exhibited in quantity and variety, and the method adopted of arranging the various subjects in small groups, with space between them, helped to show the different plants up to advantage.

Messrs. Paul and Son, Cheshunt, had a collection of Rhododendrons in pots, but the rain somewhat marred the appearance of the flowers.

A large collection of foliage plants came from Messrs. R. Smith and Co., Worcester. Acers in variety and Conifers of various kinds were included in the group, which was of an interesting character.

Messrs. Thomas Cripps and Son, Tunbridge Wells, occupied two large spaces with groups of ornamental foliage shrubs, in which Acers were represented in variety. The arrangement of

the groups was of a pleasing character, and the exhibit was much admired.

In an open marquee Messrs. Barr and Sons, Covent Garden, had a large and interesting group of Japanese pigmy trees of apparently all ages, and though no longer the novelty they were, it could be gathered from the remarks heard that considerable interest is still taken in them.

Topiary work was shown by Messrs. W. Cutbush and Sons, Highgate, who had a large collection of Yews and Boxes, cut and trimmed into a variety of fantastic shapes. It is said that interest in topiary work is spreading.

Conspicuous indeed, near to the opening of one of the tents, were the bold spikes of *Eremurus himalaicus*, which were shown by Messrs. Jas. Veitch and Sons, Chelsea. In the exhibit were also some fine specimens of *Sciadopitys verticillata* in tubs, and a collection of Irises in pans was arranged along the front.

Messrs. L. R. Russell, Richmond, had a large group of ornamental foliaged plants, in which Acers were represented in quantity. A few Clematises were dotted about in the group, and assisted in adding to the effect of the arrangement.

Japanese Maples in quantity and variety were exhibited in the group set up by Messrs. W. Fromow and Sons, of Chiswick. The plants were mostly in small pots, and afforded a good idea of the usefulness of Acers when so grown for decorative purposes.

Messrs. John Laing and Sons, Forest Hill, set up a large group of ornamental flower and foliage plants, which were arranged with tasteful effect. The group included some fine Rhododendrons, Crimson Rambler Roses, Clematises, and Azaleas, as well as an interesting display of Maples, Ivies, &c.

Fruit and Vegetables.

It would seem as though fruit and vegetables are getting less popular at the Temple Show, as exhibits in this division were by no means numerous. Quality, however, was good, particularly in a few of the largest and most notable collections.

Once again fruit trees in pots from Messrs. T. Rivers and Son, Sawbridgeworth, were a feature of the show, and both the appearance of fruit and trees were well up to the reputation of the firm. Fine, indeed, were the fruits of Cardinal Nectarine, and Messrs. Rivers' new Peach Duke of York, while the specimens of a Plum called Curlew, with which several trees in pots were heavily laden, looked tempting. In addition to the fruits on the trees several baskets of magnificent Peaches and Nectarines were displayed, the whole a meritorious exhibit.

A very interesting exhibit of fruit was staged by Mr. G. Camp, gardener to Mr. S. Heilbnt, The Lodge, Holport, Maidenhead, and was composed of fruiting Vines in pots of varieties Gradiska, Black Hamburg, and Foster's Seedling, Cherries Early Rivers and Guigne D'Annonay, and Strawberries.

A collection of fine looking Melons was staged by Mr. Chas. Ritchings, Catel, Guernsey, and included varieties Paterfamilias, Best of All, Goldfinder, and Hero of Lockinge. The same exhibitor also staged several fine dishes of Tomatoes.

The Imperial Cold Stores, Ltd., Tottenham, staged a collection of Apples to illustrate the way in which this fruit may be preserved by cold storage. Most of the examples had a fresh and firm appearance.

Mr. T. R. Cuckney, Cobham Hall Gardens, Gravesend, staged some fine fresh looking fruits of Strawberry Royal Sovereign. Good fruits of Melons were shown by Messrs. Sutton and Sons, Reading, comprised in the following varieties: Hero of Lockinge, Ringleader, Best of All, and Royal Jubilee. The same firm exhibited a very fine dish of Tender and True climbing French Bean.

A few Figs in tubs were shown by Messrs. Hugh Low and Co., Enfield, the plants being fairly well laden with green fruits. From Lady Warwick's College, Studley Castle, Warwickshire, there came a fresh-looking exhibit of vegetables composed of good specimens of Late Queen Cauliflower, Lock's Hill Tomato, White Milan Turnips, Sharpe's Victor and Ringleader Potatoes, Asparagus, Lettuces, and Spinach.

Mr. W. L. Bastin, gardener to Sir Alex. Henderson, Bart., M.P., Buscot Park, Faringdon, Berks, staged a grand display of vegetables. The examples throughout were clean and well grown, and conspicuous amongst them were The Sultan Rhubarb, Peas Duchess of York, Duke of Albany, Early Giant, and May Queen, Beans Sutton's Tender and True and Plentiful, Cabbage Sutton's Favourite, April and Early Market, Cucumbers Sutton's Matchless, Epicure, and Prizewinner, Lettuces Ideal and Golden Ball, with Tomatoes Perfection and Princess of Wales, Potatoes Early Ashleaf and Sharpe's Victor, Cauliflowers, Marrows, Artichokes, Asparagus, Mushrooms, and Salads were also included in this meritorious exhibit.

An interesting collection of Cucumbers and Tomatoes was staged by Mr. S. Mortimer, Farnham, Surrey. Amongst the former were fine specimens of Sensation, Empress, Tender and True, Aristocrat, Progress, and Lord Roberts. A few of the most striking dishes of Tomatoes were Best of All, Up-to-Date, Sutton's Satisfaction, Holmes' Supreme, Winter Beauty, and Peerless.

Mr. J. F. Groves, Cedar Nursery, Ham, Surrey, had a collection of the sensational Eldorado Potatoes, in pots. Doubtless this is the first time that such an exhibit has appeared at a Temple Show.

Messrs. H. Cannell and Sons, Swanley, made an effective display with vegetables. Peas, King Edward VII., Duke of Norfolk, British Empire, and English Wonder were fine, as also were Cabbage Cannell's Defiance, and Potatoes Snowdrop, Beauty of Hebron, King Edward VII., Springfield Harbinger, Supreme, New Perfection, Windsor Castle, Triumph, and Carltonian. In addition to the above, the collection contained good examples of Peas, Dwarf and Runner Beans, Tomatoes, Marrows, Carrots, and Giant Cos Lettuce. By the way in which the vegetables were arranged, the dishes were all shown up to good advantage.

The Hon. A. H. T. de Montmorency, The Grange, Carrickmines, Dublin, sent three dishes of Potatoes, Royal Kidney, Sir John Llewelyn, and Snowdrop, grown under glass, with no other heat than that provided by the sun. Mr. J. Hobday, Southfield, Havering Road, Romford, showed some tremendous sticks of Rhubarb, rightly named The Giant. Some large heads of Asparagus were exhibited by Mr. A. T. Harwood, Colchester, Mr. Walter Godfrey, Colchester, and Mr. Robert Stephenson, Burwell, Cambridge.

Awards, Cups, and Medals.

The order in which the names are entered has no significance, but is purely accidental.

Veitchian cup to Messrs. W. Paul and Son, for Roses.

Gold medals to Messrs. Jas. Veitch for stove and greenhouse plants; Mr. A. J. A. Bruce for Sarracenias; Messrs. Fisher, Son, and Sibray for trees and shrubs; Mr. Geo. Mount for Roses; Messrs. Rivers for fruit trees; Baron Schröder for orchids.

Special prizes for arrangement to Sir Frederick Wigan, Bart.; Messrs. James Veitch and Sons.

Silver cups to Mr. Irwin Lynch for hybrid Gerberas; Messrs. Cannell for vegetables, Cannas, &c.; Mr. J. Russell for stove and greenhouse plants, &c.; Messrs. W. Cutbush for clipped Yews, and herbaceous plants; Paul and Son for Roses and herbaceous plants; Cuthbert for Azaleas, &c.; Hill and Son for ferns; Jackman for Clematis and herbaceous plants; Sutton and Sons for Cinerarias, Gloxinias, &c.; Cheal and Sons for trees and shrubs; R. Smith and Co. for Clematis and herbaceous plants; Mr. C. Turner for Roses; Sir Alex. Henderson, Bart., Faringdon, for vegetables; Mr. S. Heilbut, Maidenhead, for pot Vines and Cherries; Messrs. Blackmore and Langdon, Twerton-on-Avon, for Begonias; Charlesworth and Co., Heaton, Bradford, for orchids; Mr. J. Colman, Reigate, for orchids; Messrs. J. Backhouse and Son, York, for alpine and rock plants; A. Dickson and Sons, Belfast, for Tulips; H. Low and Co., Enfield, for Figs, Carnations, orchids; and Captain George Holford, C.I.E., C.V.O., for orchids; Barr and Sons for pigmy trees and herbaceous plants; and Cripps and Son for Acers and trees and shrubs.

Silver-gilt Lindley medal to Mons. Vuylsteke for *Odontioda Vuylstekeae*, a very extraordinary hybrid orchid.

Silver-gilt Flora medals to Messrs. J. Laing for Begonias and Caladiums; T. S. Ware for Roses, Begonias, &c.; Peed for Caladiums and Begonias; Mr. H. B. May for ferns, &c.; Mr. Amos Perry for herbaceous plants; Messrs. Bull and Sons, orchids and foliage plants; Mr. Farrer for alpiners; Mr. Pritchard for herbaceous plants; Hobbies, Ltd., for Roses and Carnations; Messrs. J. Waterer for Rhododendrons; Mr. R. Ashworth for orchids; Messrs. Cowan for orchids; Messrs. Cypher for orchids; Carter and Co. for Calceolarias, Gloxinias, &c.; and Messrs. Fromow for trees and shrubs.

Silver-gilt Knightian medal to Mr. C. Ritchings, Guernsey, for Melons and Tomatoes.

Silver-gilt Banksian medal to Messrs. Balchin and Sons, Hassocks, for hardwooded plants; Messrs. Pulham, Elsenham, for rock plants; Guildford Hardy Plant Co., Guildford, for herbaceous and alpine plants; Messrs. Dobbie, Rothesay, for Dahlias, Violas, &c.; Mr. H. J. Jones, Lewisham, for Sweet Peas, Begonias, &c.; Mr. W. J. Godfrey, Exmouth, for Pelargoniums, Poppies, &c.; Mr. G. Reuthe, herbaceous plants and alpiners; Messrs. F. Cant and Co., Braiswick Rose Gardens, Colchester, for Roses; J. Rutherford, Esq. for orchids; Messrs. Ladhams for hardy perennials; and Mr. E. Ascheron for Calceolarias, &c.

Silver Flora medals to Mr. Leopold de Rothschild for "Geraniums"; Hon. A. H. T. Montmorency for Tulips, &c.; Lord Aldenham for Streptocarpus; Mr. R. C. Notcutt, Woodbridge, for herbaceous flowers, &c.; Messrs. Jones and Sons, Shrewsbury, for Sweet Peas, Irises, &c.; Messrs. B. R. Cant and Sons, Colchester, for Roses in pots; B. S. Williams and Son, Holloway, for Rhododendrons, &c.; Mr. A. F. Dutton, Bexley Heath, for tree Carnations; Messrs. E. Webb and Sons, Stourbridge, for Gloxinias, Calceolarias, &c.; Mr. T. Jannock, Dersingham, for Lilies of the Valley, Lilacs, &c.; Messrs. B. R.

Davis and Sons, Yeovil, for Begonias; Mr. John R. Box, West Wickham, for Begonias; Mr. Robert Sydenham, Birmingham, for Sweet Peas; Messrs. Reamsbottom and Co., Geashill, King's County, for Anemones; N. L. Cohen, Esq., Englefield Green, for Calla Elliottiana; Messrs. Hogg and Robertson, Dublin, for Tulips and Irises; Mr. John Robson, Altrincham, for Orchids; Mr. W. Iceton, Putney, for Lilies of the Valley and foliage plants.

Silver Knightian medal to Mr. S. Mortimer for Cucumbers and Tomatoes; and Mr. R. Stephenson for Asparagus.

Silver Banksian medals to Miss Crooke for vegetables; Mr. J. Cuckney for Strawberries; Mr. A. J. Harwood for Asparagus; Mr. W. J. Godfrey, also for Asparagus; the Ranelagh Nurseries Company, Leamington Spa, for foliage plants; Messrs. Storrie and Storrie, Dundee, for Auriculas and Streptocarpus; Mr. Vincent Slade, Taunton, for Pelargoniums; Messrs. Boyes and Co., Leicester, for Carnations; Misses Hopkins, Knutsford, for alpiners and rock plants; Messrs. Watkins and Simpson, Covent Garden, for collection of annuals in pots; Kelway and Son, Langport, for Pyrethrums; Gilbert and Son, Dyke, Bourne, Lincs., for Anemones; W. and J. Brown, Stamford, for greenhouse plants; R. Anker, Kensington, for Cacti; Mr. L. J. Draps Dom, Brussels, for Begonias, foliage plants, &c.; A. Le Gullim, New Eltham, for Begonias.

Cultural commendation to Mr. J. Hudson, V.M.H., Gunnersbury Park Gardens, W., for Roses.

Certificates and Awards of Merit.

Azalea mollis × *sinensis*, var. *Ellen Cuthbert* (R. and G. Cuthbert, Southgate).—Very attractive, being coloured nankeen yellow on the lower two segments of the flowers, and reddish-apricot on the top three. A.M.

Begonia Mr. W. H. Edwards (T. S. Ware, Ltd.).—A double of good size and perfect form, with wavy edges. It is coloured faint blush pink, with white at base of the petals. A.M.

Begonia Lady Curzon (Blackmore and Langdon).—A gem both in form and colour. The petals are smooth and thick, coloured rich salmon-red—a telling variety. A.M.

Begonia Avalanche (Blackmore and Langdon).—A very large pure white double, with wavy petals. A.M.

Campanula rupestris (W. Cutbush and Son).—A dwarf, creeping, tomentose, alpine species, with lavender flowers, each marked with a darker beam in the segments. It blossoms freely. A.M.

Cattleya Stepmani (Ch. Vulysteke).—A beautiful flower of light mauve-purple colour, well-shaped lip, opening in front. It is rich port-purple at the crimped apex, bright soft yellow in the mouth of the throat, with a white zone between the two colours. The parents are *C. corbeillensis* × *C. Warscewiczii*. A.M.

Cymbidium Devonianum (Sir Frederick Wigan, Bart.).—A cultural commendation was awarded for an excellently flowered plant of this.

Dodecatheon Madame Blanche.—A pure white-hued form, with large clusters of flowers. A.M.

Edraianthus serpyllifolius (Mr. G. Reuthe, Keston, Kent).—This well-known dwarf little bell-flowered alpine (flowers violet-purple) received an A.M.

Gloriosa Rothschildiana (Hon. Walter Rothschild).—A noble new species with crimson-ruby segments, waved at the edges as in *G. superba*. The edges are also golden, giving the flowers increased merit. Altogether this is a decided acquisition. F.C.C.

Lælio-cattleya Digbyano-Mossiae, *Westonbirt* var. (Captain G. L. Holford).—The petals here are very broad, and the flowers are very large. The throat is green, shading off to bronze. The segments are delicate mauve-purple. F.C.C.

Lælio-cattleya Martineti (Hon. Walter Rothschild).—A large and handsome flower with well-expanded lip, of a velvety texture and rich purple colour, with faint bronzy gold throat. The segments are rose-purple, long and graceful. A.M. From Tring; gardener, Mr. Dye.

Lælio-cattleya Canhamiana, *Rosslyn* variety (Charlesworth and Co.).—A large, well-built, strong flower, with mauve-carmine petals and sepals, and rich crimson, velvety lip. F.C.C.

Lælio-cattleya Fascinator, var. *King Edward* (Charlesworth and Co., Heaton).—A lovely flower of the most delicate beauty. The Sobralia-like lip is orange within, this being encircled with white which runs out into a beam, and on each side of the centre the lip is coloured light mauve-purple. The petals and sepals are white. F.C.C.

Lupins, perennial hybrid (Barr and Sons).—The firm secured an award of merit for the "strain." These are in various colours, as rose-primrose, lavender, blue and white, and other shades.

Lupinus polyphyllus rosea (Cheal and Sons).—A light, pleasing rosy form. A.M.

Odontoglossum concinnum lætum (Ch. Vulysteke).—This has an ivory-coloured ground, barred with chocolate. A.M.

Odontoglossum venustum (Ch. Vulsteke).—Parentage: Harryo-crispum × Ardentissimum. A fine large flower of fair good form, and broad segments. The ground-colour is white, irregularly blotched with magenta. A.M.

Odontioda Vulstekeæ (Ch. Vulsteke).—A bigeneric hybrid between *Cochlioda Noezliana* and *Odontoglossum Pescatorei*. It has the form of the latter, but is coloured bronzy red, edged purple, and has a band of white between the red and the purple. The lip has a bright golden crest; and altogether this is one of the most remarkable as well as beautiful new hybrids seen for a long time. It opens up great possibilities for new crosses. F.C.C. From Loochristi, Belgium.

Pelargonium, Lady Decies (Charles Turner, Slough).—This is a decorative variety. A.M.

Pteris Binoti (J. Hill and Son).—A very distinctive, deeply palmate-lobed fern, closely allied to *P. palmata*. At Kew it was said to be a form of *P. ludens*, but that species is considerably different. It was sent to Messrs. Hill by Mr. Binot, who collected it in Brazil. A.M.

Rose, Perle des Neiges (Wm. Paul and Sons).—A white-flowered very graceful polyantha Rose, bearing clusters of flowers similar individually to those of Dorothy Perkins in size. The stems are strong, and branch freely; the growth vigorous. The plant stood 8 to 9ft. high. A.M.

Edinburgh Spring Show.

The flowers that bloom in the spring are all but over, and those of summer are hardly with us yet, but the Waverley Market, Edinburgh, was a brilliant scene on the occasion of the first show of the season under the auspices of the Royal Caledonian Horticultural Society; on Wednesday and Thursday of last week, May 25 and 26. As an exhibition it was fully up to any of its predecessors under the same roof, and though the gardeners have not yet got quite accustomed to the change of date, yet there was a large, and in some cases a keen, competition. Both in the number of entries and of exhibitors there was an increase from last year. Plants were the leading feature of the show, and though there were many of exceptionally good quality, there was too great an abundance of what might be termed "middling," and it would probably be advisable to drop some of the classes for strictly spring flowers, such as early Tulips in pots, as those shown were a little suggestive of fossil remains. The nurserymen turned out in strong force, their exhibits being really the making of the show. The secretary, Mr. P. Murray Thomson, as usual, had the arrangements well-ordered.

Plants.

The leading class was for a group arranged within a circle 18ft in diameter, and rather strange to say there was only one competitor, and that from beyond the Border. The exhibitor was Mr. A. Knight, gardener to Sir Wilfrid Lawson, Brayton, Cumberland, and was very attractive, though just a trifle common. It was arranged crescent-shaped with a circle inside. *Schizanthus* were largely used, and Spanish Irises, with a pretty mixture of palms, Crotons, ferns, &c. The inner circle was mostly of *Calceolarias*. For a table of orchids, 10ft by 4ft, there were three competitors, the first prize being awarded to a meritorious lot from Mr. Duncan Mackay, gardener, Viewbank, Lasswade. This was well arranged, and contained some pretty, though not large, plants—*Dendrobium Wardianum* was prominent, and *Odontoglossum crispum* (too stiffly tied up), *Od. triumphans*, *Cattleya Mossiæ*, &c., interspersed with ferns, Crotons, and other foliage plants. Mr. McIntyre, The Glen, was second; and Mr. Wood, Oswald House, third.

For ten plants in bloom, Mr. McIntyre was clearly ahead with excellent stock; Mr. Young, Hartrigge, Jedburgh, was second. For six plants also in bloom, the same competitors were in this same order. For classes of six and four stove and greenhouse plants in flower, Mr. McIntyre took the lead. For the four plants, Mr. Wood was a creditable second. Mr. McIntyre was also to the front in the classes for indica Azaleas, and hardy and greenhouse Rhododendrons.

For six hardy Azaleas, Mr. Pearson, gardener, Beechwood, Corstorphine, was first with handsome, well-bloomed plants, also for four hardy Azaleas. There were fair exhibits of *Amaryllis*, zonal and Ivy-leaved *Pelargoniums*, *Deutzias*, *Lilacs*, and *Cinerarias*, of which there was a fine display, the stellata varieties from Mr. Galloway, Gosford Gardens, which gained first, being very beautiful. *Spiræas* were a splendid lot, the prize specimens in classes for four and two plants respectively being very fine, mostly of *Astilboides* section.

Of orchids in pots there was a fair display, Mr. Sharp, Free-lands, Forgandenny (a veteran grower), being first for four, with good plants of *Lælia purpurata*, *Vanda suavis*, *Odontoglossum crispum* and *Andersonianum*. Mr. D. Mackay was second. For one specimen orchid, Mr. Dewar, gardener, Craig-clowan, Perth, was first with a very fine *Odontoglossum crispum*

with very large pure white flowers; Mr. Sharp second with a nice *Miltonia vexillaria*.

Roses in pots were a good show, the classes for twelve plants and six plants being both well competed for. Mr. Young, gardener, Craighlan, Kirkcowan, was first in both cases, his plants being well bloomed, healthy specimens, though not large. Foliage plants made a rich display, and were very effective amongst the flowering subjects. For four of these, Mr. Knight, Brayton Gardens, was first, the best plants being *Dracæna Sanderiana* and *Anthurium crystallinum*. For six foliage plants in 9in pots, Mr. McIntyre took the lead, and was also for two *Dracænas*. The competition for palms was good, and spread over the market, added much to the appearance of the show. Mr. Wood was the most successful exhibitor. There was a fair display of ferns in pots, the three plants for which Mr. McKenzie, Trinity Grove, got first prize, being attractive, well-grown specimens.

Cut Flowers.

At this season of the year cut flowers form only a secondary feature, but they were fairly numerous here. Daffodils were hardly worth looking at, and this class must be eliminated from the list, since the change of date. Roses were well shown in the classes for twenty-four and twelve blooms, Mr. Parlane, Row, Helensburgh, led for twenty-four, and Mr. Young, Caighlaw, was second. The order was reversed for twelve. Mr. Young was an easy first for twelve *Maréchal Niel*, and for twelve *Gloire de Dijons*, Mr. D. Fraser, Cramond House, was foremost. Carnations were a small but nice show, Mr. Young, of Hartrigge, being first.

For six vases of hardy spring flowers, Mr. A. Brydon staged a most effective exhibit. For six vases Tulips, Mr. Galloway, gardener, Gosford House, was first with fine blooms, the best being *Bouton d'Or*, *Picotee*, and *Gesneriana major*. For twelve spikes or trusses of stove or greenhouse flowers, Mr. Sharpe was in the van with a beautiful stand containing orchids; Mr. McIntyre second. Bouquets were few in number, and only moderate in quality; sprays and buttonholes a good show.

Fruit and Vegetables.

For an Edinburgh show the fruit section was a poor affair. There were six competitors for two dishes of Strawberries—Mr. McKinlay, Wrest Park, Amptihill, being first with fine examples of *Royal Sovereign* and *Leader*; Mr. A. Knight was second, and Mr. McIntyre third. For two bunches black Grapes only two lots were staged, Mr. Woodcock, Archerfield, being first, and Mr. Leslie second. Mr. Woodcock was the only exhibitor for Peaches and Nectarines, with samples of fair quality for the season. Mr. Young was the only exhibitor of Figs.

For a collection of six kinds of vegetables there were five entries, Mr. McKinlay, Wrest Park, leading with a nice lot, showing the advantages the South possesses at this season. Asparagus, Cucumbers, and Cabbage (Mackinlay's Matchless), were specially fine. Mr. Stuart, gardener, Thirlstane Castle, was second. The same competitors were similarly placed for collections of salads. Tomatoes were well shown, Mr. Kidd being first with fine quality. Rhubarb was of high merit, Mr. James Ritchie being first. Mr. Mackinlay led for Asparagus; Mr. Tanner for Mushrooms, and Mr. Swan, Dunbar, for Broccoli.

Trade Exhibits.

The trade exhibits were the great feature of the exhibition, and but for them the show would have been a very limited affair. The leading Edinburgh nurserymen vied with each other in friendly rivalry, and the three best collections were such as have been seldom equalled, and probably never surpassed, on any previous occasion. First in importance was the very imposing, and at the same time entrancing display of Messrs. R. B. Laird and Sons, Ltd. Occupying the whole circle of the west end of the market, with a frontage of about 40yds, the exhibit assumed a landscape aspect with groves, and walks, and nooks, culminating in a Japanese summer house, covered with beautiful *Wistaria*. The tall, handsome specimens of variegated and other Japanese Maples were very pleasing. Many specimen Rhododendrons in bloom were conspicuous, and the foreground was an exquisite garden laid out in beds of mollis and other Azaleas, white *Cytisus*, *Viburnum plicatus*, also Doncaster Rhododendron—a splendid bright crimson—and Ellen Schniffner (the purest of pure whites). A pillar was artistically covered with cork, with a profusion of silver Acers and Crimson Rambler Roses. The whole was such an exhibit as is seldom seen, and not many firms could attempt. (Gold medal.)

Messrs. Dickson and Co. had also a magnificent exhibit on the floor, laid out in a charmingly irregular manner, radiating in many forms from a centre of Bamboos mixed with longiflorum Lilies. The number of good things here are too numerous to note. Rhododendrons were in great profusion, including the beautiful Pink Pearl. Azaleas, *Deutzias*, Roses (several beautiful weeping varieties were effective), orchids, *Cinerarias*, *Calceolarias*, Coronation salmon pink Geranium,

&c., were most noticeable. Nicē small specimens of Cocos Weddelliana, Bamboos, and Maples were skilfully interspersed amongst the coloured masses. Among novelties, Gerbera Jamesoni and Ostrowskia magnifica were noticeable. (Gold medal.)

Mr. John Downie also exhibited a floor group of great dimensions, composed principally of spring-flowering shrubs interspersed with greenery. This would have been more effective if the plants had not been so closely massed. (Gold medal.)

Messrs. Hogg and Robertson, Dublin, had a splendid exhibit of their famous collection of Darwin and May-flowering Tulips, which attracted great attention. The arrangement of this stand was very admirable. (Gold medal.)

Messrs. R. and G. Cuthbert, Southgate, exhibited an imposing and beautiful group of moliis and other hardy Azaleas, interspersed with palms, the whole being a very pleasing feature of the show. (Silver-gilt medal.)

Messrs. Reamsbottom and Co., Geashill, Ireland, were awarded a silver-gilt medal for one of their pretty exhibits of St. Bridgid Anemones. Messrs. Cunningham and Fraser had a similar award for a most artistic rock garden, planted with very beautiful specimens of alpine plants and dwarf shrubs in bloom. This was a wonderfully meritorious exhibit.

Messrs. Dobbie and Co. had also a silver-gilt medal award for a large attractive table of the class of flowers for which they are famous: French and African Marigolds, Dahlias in bloom, Aquilegias, Violas, and Pansies, and a choice collection of rock plants.

Mr. John Forbes, Hawick, had also an attractive table of specialties, including Phloxes, tree Pæonias, Carnations, Pansies, and Violas. (Silver medal.)

Other trade exhibitors were Messrs. Grieve and Sons, with Violas and Pansies (silver medal); Messrs. Jas. Dickson and Sons, with attractive table of flowering shrubs (bronze medal); Stormouth and Son, Kirkbridge, Carlisle, a very choice lot of alpine and hardy plants containing many new and choice varieties (silver medal); Messrs. Gilbert and Sons, Bourne, Lincolnshire, fine collection of Anemones. (Bronze medal.)

Messrs. Cocker and Sons, Aberdeen, had a small table of choice varieties of Trollius, many of them seedlings of great beauty. This table was one of the most interesting features of the show (bronze medal). Mr. John Phillips, Golden Acre Nurseries, sent a small table mostly of Waverley Blue Lobelia, for which a first-class certificate was granted. Mr. T. A. Scarlett, Potato specialist, Edinburgh received a special award for an interesting exhibit of new Potatoes, in pots, including Eldorado, Discovery, Sim Grey, and others, showing the various methods of "Express" propagation.

First-class certificates were awarded to Mr. W. T. Ware, Bath, for Tulips Red Emperor, Orange King, and Ingliscombe pink. Mr. Bryson was awarded a special cultural certificate for a very beautifully grown Pelargonium.

Royal National Tulip Society, Northern Section.

The annual show was held at Middleton, near Manchester, on Saturday, May 28. The date chosen was about a week too early for the Lancashire growers, but some splendid flowers were brought by Messrs. Needham, Hall, and Eyre, and the competition was keener than it has been for some years. Feathered flowers were especially good and clean, flamed flowers were weaker than usual, while breeders in many cases showed signs of damage, caused by the heavy rain of Whit week, and were the weakest feature of the show. Stockport, feathered byblœmen, was well shown by several growers, notably by Mr. Needham. Mr. Hall showed Geo. Hayward of large size, splendidly feathered. In feathered varieties Masterpiece, Modesty, Lord F. Cavendish, Sir J. Paxton, and Stockport were the best, and in flamed flowers Geo. Edward, Mrs. J. Gibbons, Lord Stanley, A. McGregor, and Aglaia were the best. Alfred Lloyd was the premier breeder. This new sort is proving very useful as a breeder, although it has never been of much value as a broken flower. The judges (Messrs. Housley, Stockport, and Whitaker, Royton) made the following awards:

Class 1, twelve rectified Tulips, two of each class.—1. Mr. J. W. Bentley, Stakehill, Middleton, with Lord Stanley, Samuel Barlow (flamed), W. Annibal, Masterpiece (feathered bizarres), A. McGregor, Mabel (flamed), Mrs. Collier, Mrs. Atkin (feathered roses), Talisman, Chancellor (flamed), Bertha, Stockport (feathered byblœmens). 2. Mr. C. W. Needham, Warrington, with Samuel Barlow, Sir Joseph Paxton (flamed), Sir J. Paxton, Wm. Wilson (feathered bizarres), Mabel, A. McGregor (flamed), Arlette, Modesty (feathered roses), Mrs. J. Gibbons, George Edward (flamed), Stockport, and E. Pegg (feathered byblœmens). 3. Mr. S. Eyre, Ripley, with Polyphemus, Dr. Hardy (flamed), Wm. Wilson, Lord Stanley (feathered bizarres), Aglaia, Mabel (flamed), Modesty, Miss Nightingale (feathered roses), Talisman, Duchess of Sutherland (flamed), Stockport, and Bessie (feathered byblœmens). 4. Mr. A. Moorhouse, Wakefield, with Sir J. Paxton, John Brook (flamed), Lord F. Cavendish, Masterpiece (feathered bizarres), Aglaia, A. McGregor

(flamed), Parker's Rose, Mabel (feathered roses), Lord Denman, Stockport (flamed), Bessie, and Stockport (feathered byblœmens). 5. Mr. A. D. Hall, Harpenden, with Sir J. Paxton, Samuel Barlow (flamed), Masterpiece, W. Annibal (feathered bizarres), Mabel, A. McGregor (flamed), Modesty, Sarah Ann (feathered roses), Talisman, Chancellor (flamed), W. Parkinson, and Talisman (feathered).

Class 2, six dissimilar Tulips, one of each class.—1. Mr. Needham, with Sir J. Paxton (feathered and flamed), Mabel, Modesty, George Edward, and Bessie. 2. Mr. Eyre, with Lord Stanley, Lord F. Cavendish, Mabel, Modesty, Duchess of Sutherland, and Adonis. 3. Mr. Bentley, with Samuel Barlow, Masterpiece, A. McGregor, Mabel, Chancellor, and Bertha. 4. Mr. Hall, with Sir J. Paxton, W. Annibal, Mabel, Sarah Ann, Chancellor, and E. Pegg. 5. Mr. Moorhouse, with Sir J. Paxton, Lord F. Cavendish, A. McGregor, Modesty, Hardwick's Seedling, and Bessie. 6. Mr. J. H. Wood, Middleton, with Sir J. Paxton (feathered and flamed), Mabel, Modesty, Talisman (feathered and flamed).



Iris squalens.

(See page 469.)

Class 3, six dissimilar Tulips, for small growers.—1. Mr. T. Buckley, Stalybridge, with Sir J. Paxton, Masterpiece, A. McGregor, Modesty, Stockport (feathered and flamed).

Class 4, three feathered Tulips.—1. Mr. Buckley, with Lord F. Cavendish, Modesty, and Stockport. 2. Mr. Eyre, with W. Wilson, Modesty, Adonis. 3. Mr. Hall, with J. Moody, Mr. Atkin, Adonis. 4. Mr. Needham, with Masterpiece, Loveliness, Masterpiece. 5. Mr. Bentley, with Sir J. Paxton, Modesty, Bertha. 6. Mr. Moorhouse, with Lord F. Cavendish, Modesty, Stockport.

Class 5, three flamed Tulips.—1. Mr. Needham, with Sir J. Paxton, Mabel, and George Edward. 2. Mr. Bentley, with Dr. Hardy, Mabel, and Talisman. 3. Mr. Hall, with S. Barlow, A. McGregor, Talisman. 4. W. H. Midgley (Halifax), with Samuel Barlow, Stockport, and Clio. 5. Mr. Eyre, with Orpheus, Mabel, and Duchess of Sutherland. 6. Mr. Moorhouse, with Sulphur, Clio, and Geo. Hardwick.

Class 6.—No exhibit.

Class 7, one of each class: Samuel Barlow Memorial prize.—1. Mr. Hall, with G. Hayward and Talisman; 2. Mr. Needham, with Sir J. Paxton and W. Wilson; 3. Mr. Bentley, with Sir J. Paxton and Masterpiece; 4. Mr. Eyre, with Minerva and Bessie; 5. Mr. Buckley, with Lord F. Cavendish and W. Wilson; 6. Mr. Midgley, with Stockport and Chancellor.



Hardy Fruit Garden.

WALL TREES.—There is every indication of heavy crops of Pears, and if fine, well-finished fruit is to be gathered, early attention must be given to thinning. See that the trees suffer no lack of water, and attend to the proper arrangement of the growths, removing strong fore-right shoots, and pinching or depressing others which appear to be getting away too strongly. Young trees in particular will need attention. Morello Cherries will need attention in laying in the shoots to supply next season's crop of fruit. Look over the trees, and leave only the requisite number of growths for furnishing them with the required number. This obviates the excessive use of the knife in autumn and winter. Have nets in readiness to protect the fruit of dessert varieties, as immediately they take on the least amount of colour birds will attack them. If attacked by aphides, syringe the shoots with a solution of quassia or one of the recognised remedies.

ESPALIER APPLES.—Pinching and discarding unnecessary shoots may be with benefit accorded these. The stopping of side growths must not be severe; five or six leaves should be left, or the basal buds start into growth and produce a mass of small useless spray. Thin heavy crops as soon as it is seen which fruits are likely to be the largest, though in the case of some of the Codlin family, such as Lord Suffield, Grosvenor, and others, the crop may well stand until the fruit is of some service in the kitchen.

STRAWBERRIES.—The nets for these must be in readiness. Birds quickly take toll of the ripening fruits, and the earliest to change colour are frequently the finest. Young plants with but a small amount of foliage must have the nets supported over them on frames or sticks. Where a slight framework can be erected, this is by far the best, as gathering can then take place without the removal of the nets. Royal Sovereign produces such an abundance of tall, strong foliage that well supports the nets. Last season, owing to the continuous wet and rampant growth of this variety, we found it necessary to tie up the foliage in bundles to allow the berries to ripen. Mice quickly play havoc if existing in any numbers, and the mulching material placed among the plants no doubt harbours them. Traps should at once be set for these annoying pests if their presence is suspected.

GOOSEBERRIES AND CURRANTS.—Where there are heavy crops of the former, the bushes may be quickly relieved of a portion of their load. The berries gathered for culinary purposes should always be taken from the lower branches. By reducing the present heavy crop, those remaining will attain finer proportions for sending ripe to table. It is but seldom that Currants are gathered in a green state, but they are at times in request for bottling purposes. Where the bushes are swelling excessive crops (and Black Currants are tremendous crops in this district) some assistance may with profit be afforded. I have found the trees perfect and retain heavy crops much better when the swelling was aided by one or two applications of superphosphate or meat manure. All bushes—especially those growing in light soils—will benefit from a mulching of manure, or failing this, spread the lawn mowings over the roots.—J. W., Newent, Glos.

Fruit Forcing.

CUCUMBERS.—Plants in houses that have been in bearing since the beginning of the year may be cleared out, and the house cleansed preparatory to replanting with young plants or Melons for a late crop. This answers where there are several houses, and the plants are grown to provide fruit for marketing as regards Cucumbers; but where the old plants are fairly healthy, and fruit not supplied from other sources, such as pits and frames, they may be kept fruiting a little longer by removing some of the soil, and replacing with lumpy loam, afterwards surfacing with sweetened horse droppings. Thin out the old growths, and encourage young in their place, shade from powerful sun, syringe in the morning and afternoon, and damp well before nightfall. Admit a little air at 75deg, increasing with the advancing sun, keeping through the day at 85deg to 90deg, and closing early, so as to retain the latter degree, or advance to 95deg to 100deg. Fire heat need only be employed to maintain a night temperature of 60deg to 65deg, and to insure 70deg to 75 deg by day.

VINES: EARLY HOUSE.—As soon as the Grapes are cleared off the Vines give the inside borders a thorough supply of liquid manure, or a top-dressing of some fertiliser washed in.

This, with adequate, but not excessive supplies of water, will help to plump the buds and encourage root action, so essential to the activity of the laterals, which, if allowed moderate extension, is the best preventive of the premature ripening of the foliage. Keep the ventilators open constantly, even in cold weather. Syringe thoroughly, to cleanse the foliage of dirt and insects, and repeat occasionally or as found necessary, to keep the old or main leaves healthy. Fresh laterals will soon be produced, and cultivators should maintain an even growth over the Vines, pinching the gross laterals and encouraging the weak. The mulching or covering having been removed from the outside border, with just enough of the lighter part left to protect the roots, a watering with liquid manure may be given, but this will not be necessary, except as a source of nutriment, where rain in sufficient amount has already fallen.

GRAPES SCALDING.—Muscats and Lady Downe's, with other varieties, are liable to scald in the later stages of stoning, therefore must be watched in hot, bright weather, and air admitted more freely for a fortnight or three weeks, until colouring commences and is advanced. Muscats are sometimes scorched when exposed to the direct rays of the sun, even after colouring has commenced, which must be provided against by a little extra ventilation, especially early, and in bright weather a slight shading. Black Hamburgs also are scorched occasionally when the berries are exposed to the direct rays of the sun, which can easily be avoided by a good spread of foliage, or by a bountiful supply of air by day and a little ventilation constantly at the upper part of the house, with a genial warmth in the hot water pipes, being very particular as regards early ventilation.—G. A., St. Albans, Herts.

The Flower Garden.

HALF-HARDY ANNUALS.—Beds of these of one species or mixtures may now be planted. If not planted in beds they are suitable for borders, forming groups of irregular size and shape. Some of the dwarfer growing annuals may be planted in lines, while the taller and most useful for cutting should have positions in the rear, or where they can have room to develop their natural habit of growth. For furnishing beds the following may be employed:—Ten-week Stocks, good plants of which placed out now will bloom freely in July, also Phlox Drummondii, Verbenas, and Petunias. As these three latter grow, some regulation of growth is desirable, and pegging down with hooked pegs or pins. Salpiglossis also make excellent beds, the plants being, however, rather slender in habit, but produce beautiful flowers of various lines and markings. Zinnias are tall and stately, useful chiefly for moderate-sized beds. They produce a succession of bloom over a long period. A good variety of Asters are indispensable for decoration and cutting in the autumn. Bright effects are produced by French and African Marigolds planted in borders with a background of shrubs. Upon the whole, half-hardy annuals require rich and deeply-worked soil, so that they can make abundance of roots, which assists them to flower well.

SUBTROPICAL PLANTS.—A few beds of subtropical plants add greatly to the attractions of a garden, and create a healthy interest. A judicious mixture of such plants as Cannas, Ricinuses, Wigandias, Eucalyptuses, Cineraria maritima, Solanums, Abutilons, Zea japonica, and Ficus elastica, will produce good effects, providing the plants have been previously well grown, and are of fair size, well rooted, and hardened to outside conditions. A few palms from the greenhouse may be used in sheltered places, also small or large plants of Araucarias in pots. Agapanthus umbellatus in large pots or tubs, and Agave americana fol. var., are admirable in positions suitable for them on balustrades or the sides of paths.

TUBEROUS BEGONIAS.—The tubers, having made strong growths, which have become duly hardened to outside conditions by the judicious treatment accorded them, may now be planted out. They should lift from the boxes or frames where they have been growing, with plenty of fibrous roots and soil adhering, which must be moist. Prepare beds for them of good tilth, and moderately rich, so that they may have a good rooting medium. With beds of ordinary good loam, the addition of well decomposed manure and leaf soil will provide good material. Indiscriminate mixing of the varieties of double, single, and semi-double will result in uneven beds, so it is best to make beds of one variety only.

DAHLIAS.—Young plants of Dahlias raised from cuttings this spring will now be of sufficient size and strength to plant out finally. Place them in an open position in well-pulverised soil, seeing that the ball of roots is moist, and a stake is placed to each plant, to which loosely, but securely, tie them. Where a border is planted wholly with Dahlias give the plants a space of 3ft between each. Thin away some of the weaker shoots of old roots previously planted out, and now commencing to make growth. Seedling plants, too, of the single varieties may now be safely planted, and if possessing a fair quantity of roots, they will soon grow away vigorously.—E. D. S., Gravesend.



TO CORRESPONDENTS

BOOK ON ROSES (C. F. P.).—We do not publish a book on Roses, but you will find the recently issued little work by T. W. Sanders (Collingridge, London), of service. It is illustrated. The best handy book is that by our esteemed correspondent, the Rev. A. Foster-Melliar, named, "The Book of the Rose" (Macmillan, price 6s.). There are also "Pictorial Practical Rose-growing," by W. P. Wright (Cassell and Co., Ltd., 1s.); and "Roses for English Gardens," by Miss Jekyll and Mr. E. Mawley (Country Life Library). Mr. W. Paul's "Rose Garden," 10th ed., costs 21s.

LEADEN VASES OR TAZZAS (Designer).—Where leaden vases are desired for special places and particular effects, such designs as those in the drawings we have had prepared may answer your needs. They are procurable through various



Leaden Vases or Tazzas.

dealers in antique, as well as modern, garden ornaments. But very pretty and even more serviceable tazzas are made by Messrs. Doulton and Co., London, S.W., who manufacture designs to order. They also make balustrading, and all kinds of designs in Doulton ware. The leaden vases are costly, but we cannot say what the actual price may be, since that varies with the size and type of vase chosen.

CULTURE OF CHERVIL AND TARRAGON (C. M. H., Southsea.)—There are several kinds of Chervil, including the plain and curled leaved, the Sweet Cicely, and Parsnip-rooted. The ordinary garden Chervil is botanically *Anthriscus cerefolium*, and the young leaves are used for flavouring soups. If you sow seeds thinly in lines 9in apart in a sunny part of the garden, the soil having been well prepared, the young leaves will be ready for use in about two months time. In the case of the Tarragon, which is a shrubby perennial, it is advisable to buy plants and place them in dryish or well-drained soil in a sheltered corner of the garden. This is generally propagated by cuttings taken in spring.

TOMATO PLANT, LEAVES, AND STEM FOR EXAMINATION AND REPORT (W. B.).—We have carefully examined the specimens, and found the infection that of the sleeping disease of Tomato (*Fusarium lycopersici*). The disease is indicated by the dull colour of the leaves, which commence to droop, or sometimes turning yellow, and ceasing growth. This is followed by a collapse of the stem, and from the relatively slow nature of the collapse of the plant has given the name "sleeping disease." The root is attacked first, the fungus gaining access through the radicle or taproot, if, indeed, it is not present in the seed, for it is known that seed obtained from diseased plants, they not being attacked until the fruit is present and the fruit ripening, seed being sowed from it produces diseased seedlings. The fungus, once gaining access to the root and stem, gradually extends upwards, the lower portion of the stem being affected. Its presence is indicated to the naked eye by a brown discoloration of the vascular bundles or woody tissues when the stem is cut through with a knife, then the plant droops or "sleeps," ceasing to make progress. Shortly afterwards the portion of stem just above ground turns brown, and is more or less covered with a very delicate white mould, which consists of fruiting branches or conidiophores, bearing conidia or spores at their tips. This is the first or conidial stage, known as *Diplocladium*, and is quickly followed by the second, or *Fusarium* condition, this producing spindle-shaped, curved spores. It is very doubtful if either the *Diplocladium* or the *Fusarium* are capable of infecting the plants—indeed, inoculation above ground has failed to infect healthy plants. The explanation of this is that the fungus commences life as a saprophyte, for it forms numerous strands of mycelium in the soil, and there also produces resting spores, as well as in the diseased plants. These

resting spores, or final stage, remain dormant in the soil for a season, then germinate, forming a mycelium capable of attacking the rootlets of Tomatoes and other plants. Remedy is out of the question, for the disease is wholly internal, hence the disease should be prevented, not using seed from diseased plants, and mixing with the soil intended for the Tomatoes one part in twenty-eight parts of soil of a mixture of eight parts basic cinder phosphate and three parts kainit, the object being to destroy the fungus in the saprophytic stage. The mixture, 1lb to 23lb of soil, should be used some time in advance of using the compost for the Tomatoes. If the plants are to be planted out, apply 2lb of the mixture per square yard, dig in about 6in deep, leave over winter, and then fork over to a depth of about 1ft, breaking up and mixing well. If this is likely to make too loose, consolidate by treading before planting out the plants, so as to induce a sturdy, fruitful habit.

PEACHES CRACKING AND SPLITTING (Constant Reader).—The cause of Peaches splitting at the stone, which is really the seat of the disaster, has not been satisfactorily explained, but is probably, as considered by the late Mr. T. Rivers, due to imperfect fertilisation, which receives confirmation from the kernel being almost invariably, in the case of cracked fruit, and especially cracking at the stone, defective, through presence of the embryo in some cases, if not in all, somewhat nullifies the imperfect fertilisation principle, rather implying the futility of self-impregnation, the necessity of cross-pollination, particularly in the case of cross-bred varieties which are often deficient of pollen, or this defective, and a régime of treatment and nutrition calculated to favour seed or kernel and stone formation rather than production of flesh. The splitting at the stone certainly occurred in a few instances before Mr. Thomas Rivers took in hand the cross-pollination of Peaches and Nectarines, and by cross-fertilisation effected very desirable advancements in the varieties thus originated both in size and quality, also season, of those fruits, as evidenced in the many very excellent new varieties raised by him. Be it also said that this increase of flesh has been had at the expense of liability to fruit splitting at the stone, and that you mention, namely, Early Rivers Peach is one of the worst in this respect. On this point Mr. Rivers says: "This Peach is apt to crack at the stone, the fruit then ceases to swell, and has no flavour. When well grown it is a delicious fruit. To obviate the fault of cracking at the stone, it should be fertilised with the pollen of other flowers. It is possible that the immaturity arises from insufficient impregnation." The foliage is grand, and the tree no doubt in excellent health, nothing being wrong, only the cracking at stone, which is peculiar to the variety. Try, another season, cross-pollination, with a small-flowered variety, such as Royal George Peach or Elruga Nectarine.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (Ignorant).—1, *Ranunculus aconitifolius* fl. pl.; 2, double Poet's Narciss (*Narcissus poeticus* fl. pl.). (South Wales).—Cannot name from mere scraps. (J. R. T.).—*Dipladenia Sanderæ*. (L. F.).—1, *Rhododendron ledifolium*; 2, *R. linearæ folium*; 3, *Ranunculus cortusoides*. (N. J., Beds.).—1, *Sedum rupestre*; 2, *Berberis japonica*; 3, *Silene grandiflorum*; 4, *Solanum crispum*; 5, *Fatsia japonica*; 6, *Raphiolepis japonica*. (Westerner).—1, *Ribes speciosa*; 2, *Cercis siliquastrum*.

Meteorological Observations at Wisley, Surrey.

Taken in the Royal Horticultural Society's Gardens—height above sea level, 150 feet.

Date.	Temperature of the Air.				Lowest Temperature on Grass.	Temperature of the Soil. At 9 A.M.			Rain.	Wind.		Sunshine.
1904.	At 9 A.M.		Day.	Night		At 1-ft. deep	At 2-ft. deep	At 4-ft. deep		Direction.	Total velocity for the 24 hours ending 9 a.m.	
May.	Dry Bulb.	Wet Bulb.	Highest	Lowest.								
	deg.	deg.	deg.	deg.	deg	deg	deg.	deg.	Ins.		Miles.	h. m.
Sun. 22	50	49	58	47	45	53	53	52	—	S.E.	50	0 6
Mon. 23	53	54	63	48	45	54	54	52	0.10	W.	239	8 29
Tues. 24	53	52	60	51	50	56	55	52	0.04	S.	159	—
Wed. 25	59	56	69	50	47	55	54	52	—	N.E.	48	4 2
Thurs. 26	61	59	73	45	41	56	55	52	0.53	W.	64	0 51
Fri. 27	59	59	65	58	54	58	56	52	0.23	W.	194	0 29
Sat. 28	55	55	64	54	55	58	56	53	—	W.	85	—
MEANS	56	55	65	50	48	56	55	52	Total 0.90	—	120	2 0

Friday, 27th, heavy thunderstorm with vivid lightning in the morning.



An Epidemic Among Lambs.

Never does a lambing season pass with some measure of loss. Accidents will happen in the best regulated families. Sometimes the losses are light, and are only looked upon as a necessary evil. Account has been taken of them, and as they were anticipated, no one is surprised. But every now and then sundry ailments assume large proportions, and can be only classed as epidemic; and, in cases of this kind, the losses are great, and cause serious embarrassment to the loser. We can well recall ravages from foot-and-mouth disease, when the poor ewes, after lambing, had no strength, no vitality left, and lambs by the score on every farm where this visitation had prevailed, either died straight off, or had to be hand-reared. Similar losses occurred after the wet seasons of '78, '79. Liver-fluke attacked the ewes: they, in most cases, managed to lamb, and then succumbed. Naturally enough the constitution of the lamb was more or less debilitated.

As to the autumn losses among lambs, we hardly like to dwell on the subject. Worm in the throat has done more harm to flock masters than the ravages of a destroying host. Skit, scour, or other forms of diarrhoea have laid low their thousands; indeed, the flock master has ever a hand-to-hand struggle with disease in some form or other. This is partly because by high feeding and undue coddling the natural conditions in which sheep were originally found have been completely altered. There is too much of artificial life; and this sooner or later brings its own punishment. We have acclimatised the sheep everywhere, quite regardless of its natural habitat; we have made it more or less exotic, and then we wonder why every now and then Nature rebels and flouts us and our plans.

Early in the lambing season this year we heard of small losses arising from what is called Navel-ill, Joint-ill, or Big-joint. This happens every year; but presently accounts came in telling of severe loss, not on one farm, but on many; indeed, in one instance, the loss of lambs amounted to 200. Affairs began to look serious. An enquiry has been instituted, and prompt steps taken to stay the plague. Prevention being better than cure; and, indeed, it is doubtful if real cures are ever made. The veterinary inspector sent down by the Board of Agriculture to inquire into the matter makes many useful and wise suggestions. The gist of his remarks are to be found in the May copy of the "Journal of the Board of Agriculture." In this particular instance the county affected is Lincolnshire; and it is well to remember that in this county are to be found very large flocks of pedigree sheep. The holdings are big, and eminently adapted for sheep; and it is quite possible that this particular class of stock has been a bit overdone.

One of the great difficulties to contend with is the half-educated shepherd. He cannot be got to see that disease follows close on the heels of dirt. Indeed, he does not fully recognise what dirt is! He is never more than superficially clean in his work. That disease lurks in unseen germs and atoms he is loth to believe, and that simple disinfectants will kill these unseen germs he also will not believe. He is a careful, good fellow according to his lights; but he takes very good care to have but few lights, and never, if possible, does he increase them. We doubt whether it be within the range of possibilities to educate the middle-aged man further. In any case, it is an uphill job, and we can only hope that the rising generation of shepherds will, on account of their greater advantages at schools, be more open to the teacher that would fain give them a few rudimentary lessons on simple precautions to ward off disease.

We may as well observe that this Navel-ill is by no means confined to lambs. Calves in unhealthy, dirty surroundings are very subject to it; and during this spring season there have been many cases of this same complaint attacking young foals. To absorb poisonous matter into the system is no difficult matter where there is an open wound; and, in the case of newly born stock, the navel, undressed with any antiseptic preparation, is the very entrance the poisonous germ needs.

A source of evil is the lambing-yard. It may be clean and wholesome at the beginning of the season, but certainly at the end of a fortnight, if not sooner, unless unusual care is taken, the place may be nothing but a hotbed for disease. It must be borne in mind that we are not now considering the case of small flocks, but we are speaking of those where the ewes may

be as many as 200, 300, or even 400 in number. The lambing-yard is chosen with a view to its convenience to the shepherd's dwelling. He must be saved as much as possible. It also must be near the shelter of stacks or buildings. It is well, too, that it should open on to a warm, sunny paddock; and, therefore, it is often found that there will be but one spot on the homestead that answers to all these requirements. Hence this yard is used throughout the whole season, and also year after year, till the whole place—the ground and all appertaining thereto—are saturated with foetid matter. If any infectious disease breaks out, the situation is hopeless.

We ourselves believe that a lambing-yard out in the open field, if shelter be provided by means of hurdles, thatched with straw, would be far preferable to the warmer, "snugger," and insanitary quarters at home. A well-found, comfortable, warm shepherd's hut would be provided, and the whole apparatus could be easily moved to fresh ground when half the lambing time was over.

Now, again, as to preventive measures. We have spoken and written so much on the same question respecting calves, and we have to repeat it again: Clean litter, and the dressing of the navel with a preparation of carbolic acid or ointment is good, but this is not enough. Many ewes lamb quickly and well without any help. Others need attention; and a shepherd's hands should not only be apparently clean, but should be purified—washed and brushed with a disinfectant solution, 1 part carbolic acid, 2 parts water. Remember, too, danger lurks under the nails; these should be cleaned and trimmed. Then, again, there are certain forceps, cords, &c., which a shepherd may use in difficult cases of parturition, and these are sources of danger unless disinfected by being boiled. Difficult cases of parturition often mean dead lambs; and it is easy to see that these dead and partly decayed lambs are not very wholesome in a place where all should be as clean as possible.

Any dead lambs—either born dead or afterwards dying—should be at once removed and destroyed, and this should be the work of any person rather than the shepherd. On no account skin a diseased lamb. The skin is not worth the risk.

The present disease is marked by stiffness of the joints, followed by formation of abscesses on almost all the joints, and in the lymphatic glands, and the lips and muzzle. These latter abscesses are liable to affect the udder of the ewes, so it does not require a Solomon to see that it must be madness to give a fresh lamb to an ewe who has lost her offspring from this complaint: the udder itself is a new source of infection. For the same reason the habit of clothing a living lamb with the skin of a dead one to induce an ewe to be a kind foster mother, is a pernicious one.

The ewe herself would often bear a little more attention to the matter of trimming behind, i.e., the tail and hind legs. This should be done before, rather than after lambing. We have ourselves seen very unclean feeding bottles and teats used in the lambing-yard, and all these are likely vehicles for conveying infection.

After the lambing season is over there is no purifier like fire for bedding and litter. Hurdles require to be scraped and washed with lime, to which should be added carbolic acid. A year is not long enough to purify tainted ground. If it were practicable, the plough and a green crop to follow, would be the finest remedy. We always have lime, but don't use it as freely as we might. After all, we go back to the old point—the responsibility of the shepherd. Get him once to see the part he must play in the prevention of disease, and the disease will in a great measure be stayed.

Work on the Home Farm.

Except that there have been a few very light showers, the week has been dry, with plenty of sunshine. We are busy swede sowing, and the seed is going in satisfactorily, although we have sown under better conditions. The land appeared fine enough when ploughed, but it ridged out a trifle rough, and it has been a case of hurry against time to make each day's work complete. To ridge the land, spread manure, split the ridges, and drill the seed, requires two pairs of horses, three horses with carts, and one horse to drill and light roll down; light horses to put in three acres per day.

To put in six acres with a larger force is more economical, for five carts will manure for four ploughs, and one horse for drilling is still sufficient; so fourteen horses will complete six acres, although the light rolling must be left until next morning, when the drill horse will do it before commencing to drill.

There is no doubt that finer swedes are produced by the ridging system, but it is a great strain on the horse labour, and makes swede sowing the hardest time of the year for the animals.

Strong land farmers are still calling for rain, and their work is at a standstill for want of it. We hear of spring corn which was put in very roughly not yet making an appearance. It probably will not until there has been a good, soaking downfall.

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Journal of Horticulture.

THURSDAY, JUNE 9, 1904.

The Temple Show.

DESPITE the very unpropitious
 weather, the great annual show
 of the Royal Horticultural
 Society at the Temple Gardens
 was a distinct success so far as
 its materials and, it may be said,
 their mode of display, were con-
 cerned; so great a success, indeed, that
 the ordinary visitor must have felt a
 sense of surfeit of beauty as mass after
 mass of brilliant flowers presented themselves in
 seemingly endless succession. We do not pro-
 pose here to deal with the exhibits at all in
 detail, since this is done elsewhere in our
 columns, our idea being rather to call attention
 to the wondrous amount of underlying labour
 and skill which has produced such marvellous
 results, of which, of course, we mainly behold
 the choicest at such a gathering.

In the first place, naturally, we must recognise
 the fact that the great facilities of transit which
 have opened up the whole world to floral
 research, and at the same time enabled the
 resulting discoveries to be safely transported for
 cultivation, constitute a very vital factor.
 Beyond this, however, we have in these later
 days to reckon with the labour of the hybridiser,
 who cunningly manages to combine the charms
 of such imports, to say nothing of those of
 indigenous flowers, by skilful alliances, and then
 by subsequent careful selection, to improve the
 types to such an extent that no one unacquainted
 with the actual facts would credit the original
 parentage. The merely selective cultivator who
 confines himself to the improvement of single
 species also works wonders; and it is to the
 joint efforts of these two classes that we owe the
 bulk of our floral wealth, though we must not by
 any means ignore the many equally beautiful
 flowers which Nature has fashioned, so to speak,
 unaided, of which most of the Lilies may be
 cited as types. Bearing these facts in mind, it
 may be interesting to take just a few typical
 groups and recall their origin.

We will start with the gorgeous array of

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tuberous Begonias, displayed exhibit after exhibit in bewildering profusion, and rivalling in size and delicacy of tint the very queen of flowers herself, though lacking her crowning glory of delicious odour. We need not be very advanced in years to remember when Begonias were hardly regarded as flowering plants at all, the large-leaved foliage section, with insignificant and unregarded blooms representing the popular ideal of the family. Later, however, two species were imported with larger, and pretty, but still by no means very attractive, flowers, and these two were mated together. The resulting seedlings, as is almost invariably the case with hybrids, varied much among themselves, and presently different tints and varied and larger forms appeared, and selection began on definite and better lines, until finally we have arrived to-day at such a pitch of perfection that it seems impossible to improve them. That is the history of the Begonia so far as the exhibits before us are concerned; but, in addition, only a few years back, another species (*B. socotrana*) with spreading panicles of small flowers, was introduced, and this speedily gave us the beautiful and very different section of winter-flowering Begonias now so popular, and affords fresh openings for further development.

Here is a group of Cannas of all tints of orange and red. In these we see, on the other hand, the developments of mere selection within one species, but yet constituting another revolution of ideas, since formerly they were grown entirely as foliage plants, and the flowers were practically disregarded, being comparatively small and irregular, and presenting but little promise of the grand flowers of to-day. In the Clematis family we have one of the most striking instances of improvement by infusion of strange blood, to a definite end. Originally, though we had many handsome Clematises, they were all either white or of cold shades of blue and purple, and despite the myriads that were raised, there seemed no chance of warm ruddy tints arising by a sport. What could be done? The only known species of a red colour (*C. coccinea*) had an absurd habit of hardly opening its buds, which were, moreover, somewhat small and pinched up near the opening, in a very unpromising fashion. The much-desired colour, however, was there, and so the hybridiser set to work to see if it could be infused into the better formed flowers. At first, naturally, the resulting crosses inherited more or less of the faulty shape, which marred the broadly opened chalice of the ideal Clematis flower. In time, however, by selection this fault was bred out, and we now see a host of beautiful types, huge blossomed, and delicately rose tinted, or even as in "Ville de Lyon" of a rich red throughout, and yet of perfect form.

The history of the Roses already fills volumes. Here, too, it is the hybridist and the selector, aided frequently by Nature's sportive fancy, which often gives an altogether unexpected prize, who have fashioned an originally simple flower into thousands of ornate and multiform types. A curious feature, however, of one exhibit, Waltham Rambler, is an absolute reversion to the simple wild Rose of the hedges, but in large and well-arranged bunches, a combination of native simplicity with the more floriferous nature of the Crimson Rambler type, which is extremely beautiful. The hitherto white Tobacco flower has also recently received an infusion of coloured blood, and a noteworthy feature of the exhibition was a group of varied tints which graced the show in the large tent, the beginning doubtless of a far more attractive strain.

Then we come to the orchids, always the main feature, but what can we say of these almost indescribable flowers, the sphinxes as it were of the floral world, since every one is a silent mystery of evolutionary sympathy 'twixt flower and insect at which we can hardly even venture a guess, so complex is the outcome. With this tribe, could the entire history of its introduction be written, what book of adventures could compare with it as regards the imminent perils and hair-breadth escapes of those who explore the utmost recesses of primeval forests in search of rarities otherwise unattainable? From all parts of the tropical and sub-tropical regions come these curious flowers, which seem to imitate everything but their floral non-orchidean sisters. Our native orchids (the Bee, the Fly, the Man, &c.) are curious enough, but these grand flowers of the tropics go far beyond them.

Here, too, however rich the orchid hunters' fields have proved, and variable as are the flowers in themselves, the hybridist has stepped in, linking not merely variety to variety, and species to species, but even genus to genus in an unexampled fashion, until their name is legion, and none but the expert can adequately judge their individual charms. Azaleas and Rhododendrons in dense and glowing masses, and scores of other flowers we might cite, did space permit, all telling more or less the same tale of Nature's liberality and man's ingenuity and perseverance; and it undoubtedly adds immensely to the charm of such an exhibition to bear these considerations in mind, and get thus, as it were, a little peep behind the scenes.

No one but the breeder knows the huge percentage of failures as compared with successes and prizes. Thousands of plants may be raised to no improving purpose; or, on the other hand, a single batch may form a bunch of prizes. Finally, it should not be forgotten that when results accrue, it is the province of the Royal Horticultural Society to arrange such shows as these, and that of the committees to put, as it were, the finishing touch by pronouncing for or against the fruits of so much toil. In so doing, they exercise that healthy control which is essential to the proper education of the public taste, and as a check upon undue multiplication of imperfect types and consequent swamping of the best. This office the society undoubtedly fulfils to the utmost, since its committees are all men of long and wide experience and keenly cognisant of the great responsibility which rests upon their shoulders. This being so, it is obvious that the public owe an enormous debt to the society, and it is therefore to be hoped that by the time the new Royal Horticultural Hall is opened in July, this debt will have been sufficiently recognised, so that the balance of the money required for its erection will be fully subscribed. Without such a central assembly of experts, who give their services freely and entirely *pro bono publico* and the love of the cult, not a tithe of the progress exemplified in the Temple Show could have been arrived at, for the main inducement of every cultivator is precisely that eventual expert recognition which the society provides, and which practically crowns his labour by securing public approval in addition. The least, therefore, the flower-loving public can do is to provide them with fitting quarters in which to exercise their functions, in conjunction with the council for the general benefit.

Irises at Kew.

The collection of bearded and herbaceous Irises at Kew are at the height of their glory, and among the best are *Iris amœna* Mrs. H. Darwin, with soft white glistening flowers, having an ivory white midrib and purple streaks on either side at the base of the falls. *I. florentina* is past. Varieties of *I. variegata* are Prince of Orange, rich golden standards and bronze-chocolate falls: one of the best. But for brilliance the variety Honorable vies with it. This is a tall grower. *I. v. Enchantress* is a pretty dwarf growing variety with nicely veined falls (gold and dark brownish-red). *I. v. Regina* is one of the tallest, and one of the sweetest. The standards are sulphury yellow, and the falls primrose with purple veins. *I. v. Makengo* grows 18in high, bearing bright light golden standards and intense rich dark chocolate-crimson falls. *I. v. aurea* is a soft canary yellow in each of its parts, while *I. v. alba* is white, and resembles *I. florentina*, but is much smaller in size, taller in growth, and has not the dainty mauve flush of the *Fleur de Lys*.

The *squalens* group are beautiful, especially to those who enjoy quiet colours. *I. s. Abdul Aziz* is rather poor, with purple-violet falls, and dingy buff-lilac standards. *I. s. Van Geerti* is a vigorous grower, with handsome dark foliage markedly ribbed. It was not in flower on June 4. *I. s. Walneriana* is one of the finest and handsomest Irises in the collection, having a profusion of flowers which attain a height of 2½ft to 3ft. The falls are coloured lavender-purple—a peculiar and pretty shade—having a golden beard and lines of the same hue at the base. The standards are bronzy yellow at the base and purple buff toward the top. It is faintly scented. *I. s. Dr. Bernice* has blackish crimson falls veined and bearded at the base with gold, and the standards (which are small) are coppery red. *I. s. Jacquinianna* has falls very similar, but the standards are broadly edged with magenta. The flowers are fully half a foot taller.

The *pallida* section, of course, are incomparable in stateliness, size, and grace. *I. pallida* Queen of May is one of the best known, and bears deep rosy-lilac flowers deepening toward the edges to nearly purple. This is certainly one of the most distinctive varieties, and very excellent. *I. p. dalmatica*, *I. p. Albert Victor*, and *I. p. Walner* are three stately queens, the two latter very much alike in all respects, but the falls of Walner are more of a violet colour than those of Albert Victor. The standard in each case is a light bright lavender violet. *I. p. dalmatica* is paler than either, and possesses delicate grace. *I. flavescens* is a sweet soft yellow Iris from the Caucasus. *I. neglecta* Hannibal, and *I. n. Virginie*, each with mauve standards and rich blue purple falls, are the best of the section, while *I. Sambucina* Beethoven, with rose-mauve standards and reddish violet falls, is also fine. *Iris germanica* Purple King with magnificently large red purple flowers; *I. g. major* with huge lavender flowers having purple falls; and *I. g. Siwas*, with deep indigo red standards and paler falls, are each noted varieties.



Odontoida Vulstekeæ.

Those who read the reports of the Temple Horticultural Show will have learned of the remarkable orchid hybrid of which the figure of a flower is now presented. This was presented by Mons. Ch. Vuylsteke, Loochristi, Ghent, and received a first-class certificate, as well as a special silver-gilt Lindley medal. We believe that similar crosses have been unsuccessfully attempted for a number of years past. The parents are *Cochlioda Noezliana* and *Odontoglossum Pescatorei*, these being nearly allied genera, yet all who know them will be surprised at the success of the cross. The flower we figure is hardly true in form: it should have been more round, the tips of the segments being roundly obtuse, and each fitted closely in at the base, and the lip is too large. The size is natural, showing the influence of the *Odontoglossum*, but the colour comes largely from the *Cochlioda*, i.e., it is bronzy red, edged pale purple, and has a band of white between the red and the purple. The whole flower was so warm and bright in tint that it unfailingly pleased everybody. Only a flower spike was shown—no bulbs. This would seem to open up possibilities for farther crossing with a view to add colour to the *Odontoglossums*.

Oakwood Collection of Orchids: Sale of Duplicates.

The following notes are taken from the "Gardeners' Chronicle":—The sale of duplicate orchids, the property of Norman C. Cookson, Esq. (gr. Mr. H. J. Chapman), Oakwood, Wylam-on-Tyne, at Messrs. Protheroe and Morris's Central Sale Rooms, Cheapside, at three p.m. on Tuesday, May 31, proved a "red-letter" day in the history of great horticultural events, the previous aggregates of big sales being exceeded by the total realised for the few rare lots offered, and the previously recorded highest prices for a single plant being exceeded by several. Of the eighty-one lots catalogued, all but three were sold, the total for the sold lots exceeding £5,000. *Odontoglossums*, which formed the bulk of the sale, comprised some of the best and most beautiful known kinds, and the prices realised were solely on the merits of the plants in the estimation of the buyers, for many were without reserve, and the rest simply put at a protective reserve. *Odontoglossum crispum* Cooksonæ realised 640 gs., the highest price; a very small, healthy plant of *O. crispum* Grairianum went for 370 gs.; *O. crispum* Mundayanum was purchased by Baron Schröder for 435 gs.; *O. crispum* Luciani, 250 gs. (Mr. H. T. Pitt); two plants of *O. crispum* Rossendale realised 120 gs. each (Mr. J. Leemann); the same buyer securing several of the *O. crispum* Cooksonianum, which realised respectively 170 gs., 220 gs., 85 gs., 90 gs., 75 gs., and 85 gs. *O. crispum* Franz Masereel was briskly competed for, and was knocked down to Mr. Warburton at 570 gs.; *O. crispum* Imperatrix Regina, 180 gs. (Mr. J. Leeman); *O. crispum* Grace Ruby went to Messrs. McBean for 210 gs.; *O. crispum* Ashworthianum, 280 gs. (Mr. H. T. Pitt); *O. crispum* Massangeanum, 40 gs.; *O. crispum* Raymond Crawshay, 52 gs.; and *O. crispum* tessellatum, 50 gs. (all three went to Mr. W. Bolton, of Warrington); *O. crispum* Mariæ, 180 gs. (M. Jules Hye). Others realised relatively good prices, and the rare *Cypripediums* offered also sold well, Mr. Francis Wellesley, of Westfield, Woking, and Mr. W. Bolton, being the principal buyers. There was a splendid attendance at the sale, orchidists from all parts of the country, and from the Continent, assembling in great force.

Cultural Notes: Cattleyas and Dendrobiums.

The principal attraction now in the Cattleya house is the varied and showy *C. Mossiæ*, and, as a rule, a large number of plants of it are grown. These being in flower a slightly drier state of the atmosphere should, if possible, be arranged. *C. Mossiæ*, unlike *C. Gaskelliana* and *C. labiata*, makes its growth after flowering, so as soon as its blossoms are past, the plants must be encouraged by all reasonable means in order that the growths are well finished and ripened by the waning sun in autumn.

C. citrina is resting after flowering, and must be removed from the heat of the Cattleya house, and suspended from the roof with the *Odontoglossums*. The moisture in this latter structure will be ample for the needs of *C. citrina* without watering the roots much, if any, for one of the most frequent mistakes made in the culture of this lovely plant is overwatering the roots at the resting period. *Laelia majalis* is another splendid orchid now at rest, but this may be treated to even cooler conditions than the Cattleya, and placed quite out of doors as soon as the growths are complete. *L. purpuracea* and even *L. anceps* are also benefited by this out of doors treatment.

Dendrobiums are making great headway now, and must be kept going as strongly as possible. In hot sunny weather all that seems really necessary to the culture of these fine plants is the covering of a glass roof to prevent too rapid evaporation, and any amount of moisture. *D. Wardianum*, *D. crassinode*, *D. Bensoniæ*, *D. primulinum*, *D. Devonianum*, *D. Pierardi*, and all this class of deciduous sorts must have this long hot growing season to encourage and develop fine long stems, which, if well ripened, will be wreathed in flower in spring, but the evergreen sorts, such as *D. densiflorum*, *D. thyrsoflorum*, and *D. Farmeri* require, as a rule, less time.

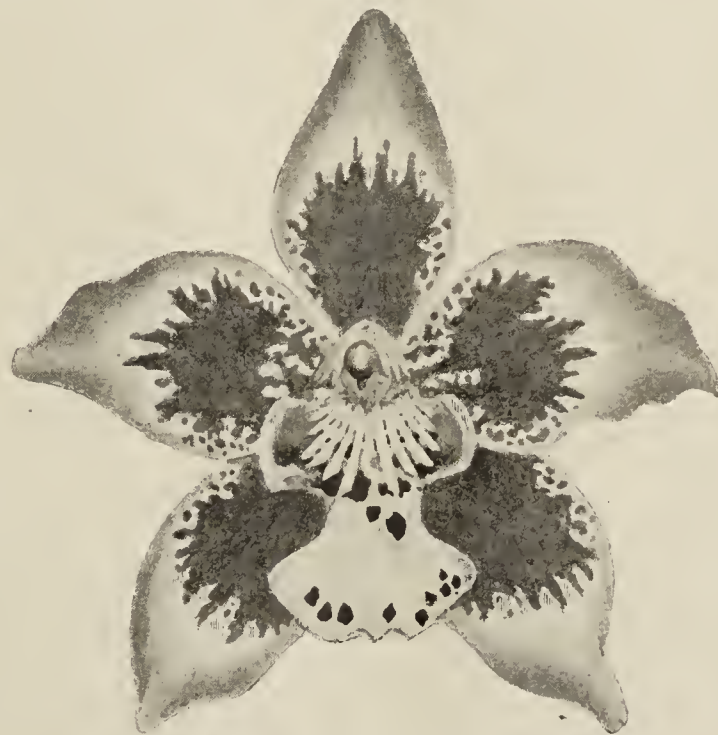
In the cool house heavy shading and abundant atmospheric moisture must be given. When the ordinary blinds are not sufficient to keep the temperature down, garden mats must be laid on the glass and frequently damped. It is useless to open the house very wide in the middle of the day, as this only serves to draw out the moisture. Just a few inches open all round is better, but in early morning and late in the evening ventilate freely, leaving air on top and bottom all night, and damping freely the last thing.—H. R. R.

Cattleya Statteriana.

Writing from Stand Hall, Manchester, on June 5, 1904, Mr. Statter says: "I have the original plant of *Cattleya Statteriana*, and also a fine painting by MacFarlane."

Cypripedium Le Douxæ.

In a note received on Thursday last, Mr. W. H. White, orchid grower at Burford, says of this variety, which we figured in last issue, that it is—"A pretty hybrid of rather doubtful



Odontoida Vulstekeæ. (Nat. Size).

A hybrid between *Cochlioda Noezliana* and *Odontoglossum Pescatorei*.

parentage. There is a marked resemblance to *C. Harrisianum* crossed with *C. cernanum*. It was raised in the collection of G. R. Le Doux, Esq., of Langton House, East Molesey, about the year 1893, and is dedicated to that gentleman's wife."

Jottings.

Summer Bedding.

When the great business of summer bedding is being completed there is often a difficulty in getting a sufficient quantity of certain plants to carry out the contemplated arrangements. At such times, ill-shaped, leggy specimens—which under ordinary circumstances would be despised—are pressed into service, and right well do they generally answer the purpose for which they are used. This is particularly the case with *Pelargoniums* of various types, which at such times can always be turned to good account. When they have to be used as a substitute for young, bushy specimens, they should, of course be arranged in almost horizontal positions, and if they are planted thickly and pegged securely, they soon grow into an even mass and flower quite as abundantly, if not more so, than their younger relatives. In other instances, the leggy specimens, if planted upright in groups, which rise here and there above dwarf plants, help to create an imposing effect. Another excellent method of utilising plants of various heights is to form pyramids by strong

stakes, set the plants around them, and tie the shoots evenly to the framework of the pyramid. With a little attention to watering and feeding, objects of brilliant beauty may thus be obtained.

It is gratifying to note that the Ranunculi are again becoming popular, for there are few flowering plants in May and early June which supply better material for cutting than the modern kinds, which produce blossoms having a great variety of rich colours. As pot plants they are also particularly showy and useful. For flowering early, they should, of course, be potted in autumn or early winter, and plunged in ashes in the open air after the manner in which Tulips and Hyacinths are treated; but I find that for late flowering plants succeed well if lifted from the open air and are potted after they have made an inch or so of growth. Those who will shortly be considering their bulb order should certainly include in the list some "corms" of these gems among hardy flowers.—H. D.

Fertilisers for Market Garden Crops.

(Concluded from page 456.)

GREEN PEAS.

In the case of Green Peas, as far as mere weight is concerned, no substantial advantage has so far been found to arise from the use of nitrate of soda, a good crop being grown from a light dressing of dung with a dressing of phosphates and potash salts. The quality, however, of the Peas has been improved by the addition of 2cwt of nitrate per acre, both as regards colour, texture, and taste.

GLOBE OR THISTLE-HEADED ARTICHOKE.

The results of five years' cropping on the same plantation showed that a combination of concentrated fertilisers and light dung gives much better results than heavy dung. Probably the best dressing is about 12½ tons of town dung, 6cwt of superphosphate, 1cwt of sulphate of potash (or 4cwt of kainit), and from 2cwt to 4cwt of nitrate of soda per acre. This combination gives on the average a much earlier crop of heads than where dung only is used. This is important to growers who supply the London markets, for Artichokes grown in the early part of the season are more easily marketable.

For Jerusalem Artichokes crop the same recommendations may be followed as have been made for winter Lettuces.

CELERY.

Celery, except on soils particularly well adapted to its cultivation, cannot, probably, be grown with any great success without the use of very much larger quantities of dung than are necessary for other crops. The dung should be placed in the trenches, together with a dressing of phosphatic manure. The crop may, during its growth, be occasionally top-dressed with nitrate of soda. The use of the concentrated fertilisers may not much increase the crop, but will tend to make the Celery more crisp and tender than that grown by the use of dung alone.

STRAWBERRIES.

Although the Strawberry plant contains a good deal of potash, the direct application of potash salts appears to be deleterious rather than otherwise to the yield. The best general treatment is probably a light annual dressing (about 12 tons per acre) of town dung, with from 4cwt to 6cwt of superphosphate, and 2cwt of nitrate of soda per acre.

GOOSEBERRIES.

A light dressing of dung (about 12 tons per acre) with 6cwt of superphosphate, 1cwt of sulphate of potash, and 4cwt of nitrate of soda per acre has given much better results with Gooseberries than heavier dressings of town dung without concentrated fertilisers. Potash appears to be a very essential ingredient of a successful Gooseberry manure. The crop of Gooseberries at Hadlow, over three years, was, on the potash-dressed plots, not far short of double that on the plots which received no potash. If nitrate of soda be used as the sole nitrogenous addition to dung, not less than 4cwt per acre should be applied.

KENTISH COB NUTS.

These are very frequently in practice dressed merely with wool dust. Experiments at East Peckham indicate that a dressing of from 4cwt to 6cwt of superphosphate and 2cwt of nitrate of soda per acre greatly improves the appearance, and consequently the market value, of the nuts, although it may not increase the actual yield per acre.

NOTE AS TO SUPERPHOSPHATE.

In the foregoing notes, superphosphate has been recommended throughout. This is on the assumption that the soil to be manured contains a sufficiency of lime; that is to say, sufficient carbonate of lime to cause effervescence when a

mineral acid is poured on it. On land poor in lime, the place of superphosphate should be taken by a considerably larger weight of basic slag, or of Peruvian guano, or of fine bonemeal, or of a mixture of superphosphate and bonemeal, or of that form of precipitated phosphate which is now to be obtained under the name of "basic superphosphate"; or at any rate the use of one or other of these manures should be alternated every other year with that of superphosphate.

COST OF MANURING.

As a rule, the concentrated fertilisers recommended in the foregoing pages will cost about £3 10s. per acre for heavy or medium land, or about £4 for light land. If town dung be taken at 7s. to 8s. per ton, the combination of 12½ tons of dung and the concentrated fertilisers will come to between £8 and £9 per acre. Sufficient town dung to give as good a yield as the mixed dressings would probably cost £15. Many market garden crops, however, can be well grown (except on very light or dry land) with chemical fertilisers alone at a cost of £3 10s. or so per acre, following some other crop that has been already dunged.—(The Board of Agriculture and Fisheries 4, Whitehall Place, London, S.W., May, 1904, Leaflet 103.)

May-Flowering Tulips.

Needless to descant on the important rôle played by these brilliant blooms in the colour schemes of the seasons, for, although they come to us when spring and summer seem to meet, and join in filling Nature's cup to overflowing with floral wealth and beauty, May Tulips hold an unique position. Passing mention, nevertheless, must be made of "Holland in Ireland," from which these notes are taken. Possibly Mr. James Robertson, when founding his little Dutch dominions at Rush, on the seaboard of County Dublin, scarcely anticipated the unqualified success which now attends this progressive Irish industry, for it must have been at its inception more or less experimental; and this in spite of climatic conditions and geographical position sufficiently resembling old Holland to have induced him to compete with a monopoly held by the Dutch for over three centuries. However, nothing succeeds like success, and in its progressiveness, and as an economic factor in the welfare of the "distressful" country, this bulmland by the sea is, to-day, sufficiently to the front to register over fifty medals and about forty certificates and awards of merit to its credit.

There is something peculiarly striking to strangers about the little old-world village on the coast, so near to, in one sense, but so far in another, from the "cardrivingest" city of the Empire. Somewhere, "beyond the misty space of twice a thousand years," Neptune presented it to Flora, and from thence it was merely seasoning and awaiting the ministrations of her high priests. True, it is not written in the records, but legibly graven in the pure sea sand, that those who run may read. The one object in life of Rush-ian peasants seems to be Potatoes and Tulips, and for a couple of miles it is Potatoes alone, amongst which are to be seen natives down on all fours tickling the sand with some peculiar implement around the diminutive tops of the noble tuber. The method marks them as people of character, and they are, and good character, too. Whether the Arab attitude of prayer and the Russian way of work, *ora et labora*, has ought to do with it, we know not, but they are spoken of with unqualified praise, and certain it is they are more concerned about Potatoes than politics.

Twelve millions of Tulips flowering in mid-May is easier to imagine than describe; yet visitors do not take in the lot at one gigantic *bonne bouche*, or rather *coup d'œil*. "Holland in Ireland" is territorially divided into many sections, which are windwarded by banks and hedges, hence the eye is mercifully spared a blaze of twelve million Tulip power. There are breaks, too, where the Daffodil has waxed and waned, and seven million of the nodding flower rest in peace. The same with another half-dozen millions of early Tulips, so a couple of acres, or thereabouts, of the May flowers *en masse* suffice for each view. Darwins undoubtedly are the feature of the day. Distinguishable by their pure self colours, noble bearing, and globular form, this section, honoured by Mons. Krelage, of Holland, with the name of the apostle of evolution, is worthy of practical recognition by all garden lovers for their borders. For this purpose we would plant them in bold clumps, each clump confined to one variety; and although the climate and sand of Rush seem so incomparably suited to their requirements, the vigorous habit and robust constitution of the Darwins lead one to infer that they would be nearly, if not equally, happy in ordinary garden soil, which we believe is the case.

From over eighty varieties seen in bloom, we noted ten particularly distinct and striking, although it was difficult to select where all were so beautiful and good. Those noted were Apricot, Clara Butt, Europe, Henner, Herschell, Laurentia, Margaret, Millet, Moralis, and Sultan. Darwin colours are difficult to describe, and it is doubtful whether any two note-

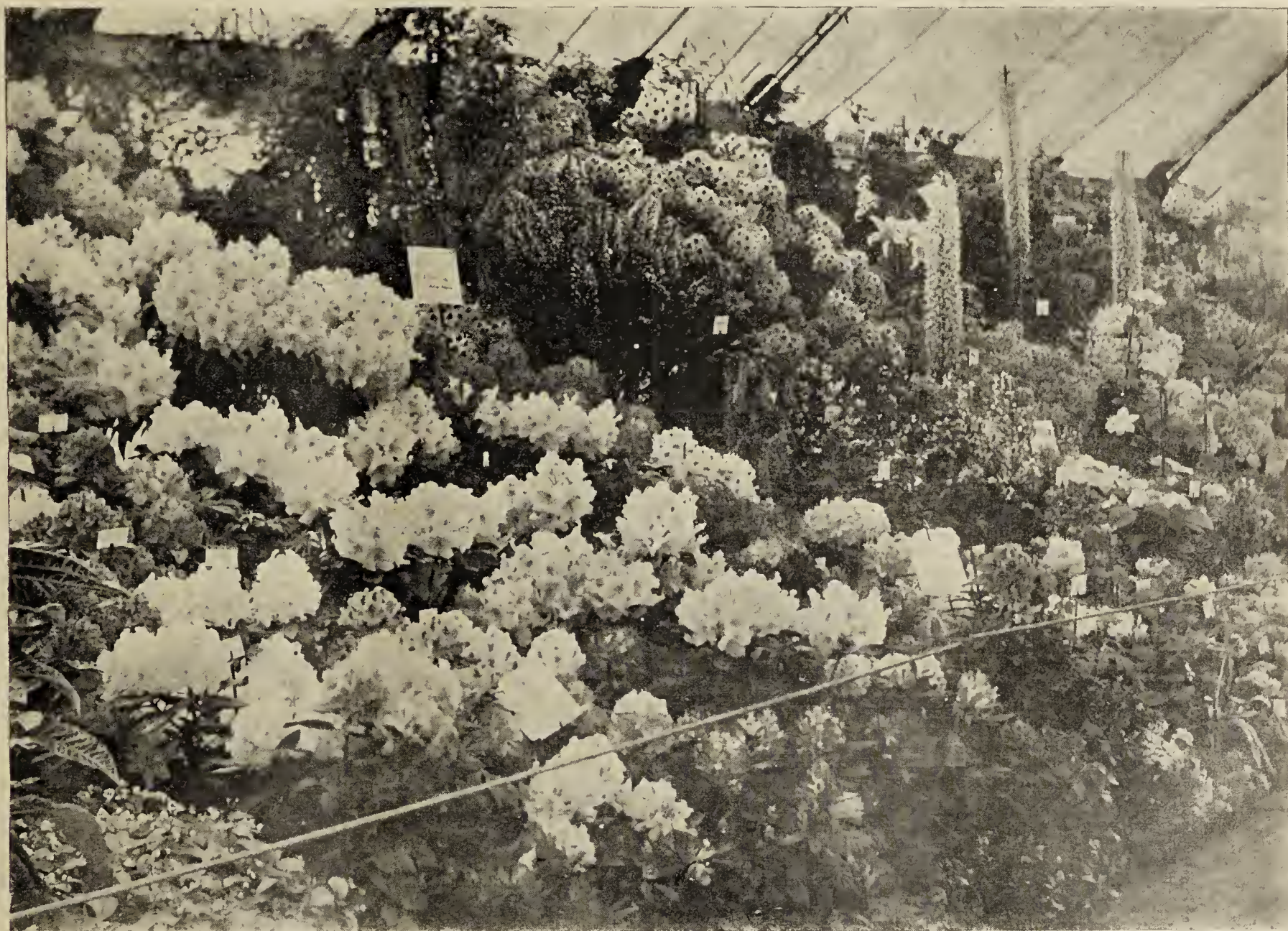
takers acting independently would agree on that matter. The powers that rule at Rush, Messrs. Hogg and Robertson, have probably gone as near the mark as is possible with this subtle colouration in their descriptive catalogue, and to this reference can be made by all interested.

Tulipa Gesneriana appears to be the parent from which sprang all garden forms, and this was introduced to Europe in 1576 (or 7) by Auger Gislén de Busbec, a celebrated traveller and Ambassador. The well-known, popular, handsome crimson form, *spatulata*, promises to have a great future for naturalising in grass, and is much favoured by Lady Ardilaun for that purpose at St. Anne's, Clontarf. We have tried it on a small scale, and are sufficiently fascinated with the brilliant glowing effect on the greensward as to have a rabid craving to plant it by the thousand in that position. We think the best effects are obtained by planting *en masse*, or, rather, bold patches, instead of dotting and dribbling the bulbs over a given area.

Golden Crown is equally commendable in its way for the purpose, and gives a lovely bit of old gold colouring in its matured

this variety has this year been the strongest grower of all, and not content with sending up branched spikes, has formed substantial bulbs in the axils of the leaves above ground. Mrs. Moon, with Golden Queen, are still good in the early days of June, although Sprengeri (scarlet) is credited with being the latest Tulip grown. The charming little species, *persica*, is admirably adapted for rockwork, for which purpose we find *Sylvestris*, our native Tulip, equally pleasing.

Having been accused of possessing a "strong weakness" for pushing Irish industries, in pleading guilty to the soft impeachment it offers an opportunity to suggest that garden-loving visitors to the Green Isle should not take this brief sketch of doings on the sands of Rush, with which, somehow, our Tulip talk has got interminably mixed, *cum grano salis*, but see for themselves. "Holland in Ireland" is very get-at-able; the growers are the most approachable and hospitable of gentlemen, and whatever secrets of successful culture are contained in their big drying sheds and offices, they are open secrets, freely given with the hospitality they thoughtfully provide.—K., Dublin.



Messrs. J. Waterer's Group of Rhododendrons at the Temple Show.

stage. The low price of this and Gesneriana are not the least of their merits for naturalising. *Macrospeila* should, too, be a fine Tulip for the purpose, its colour, apart from its jet black base, instead of blue black, being similar to Gesneriana; but it has a shorter and stiffer habit, hence does not appeal to us like the old favourite. *Macrospeila* is something later in flowering, and delicately fragrant, withal.

Caledonia, comparatively new, should, as seen at Rush, make a grand bedder, and give a fine bit of scarlet to the flower garden. We have this year associated May-flowering Tulips with Wallflowers in our spring garden with the happiest effect. As well as the last kinds named, *Picotée*, an elegant and refined flower, rosy, edged white, and White Swan, pure white, of fine form and great substance, complete a colour scheme for bedding simple and pleasing.

An extensive planting of *viridiflora*, the green Tulip (green and creamy white) would appeal to the curious; it seems to be of robust habit, but the grand form of *fulgens lutea*, named by Mr. Burbidge Mrs. Moon, is the well beloved of all. With us

Rhododendrons at the Temple Show.

The illustration presents a very fair impression of the greater part of Messrs. John Waterer's group of hardy Rhododendrons at the Temple Show. The mass of blossom on the left side filling the space almost from top to bottom is that of the variety Pink Pearl, which nearly everybody has now had the opportunity of admiring. The trusses are enormous, and of a bright pleasing pink colour. The cross is a very vigorous grower on all suitable soils, and we have seen it in many divers parts of the country. The other varieties were Sappho, still one of the most distinctive; Lady Eleanor Cathcart, Strategist, Mum, Viscount Powerscourt, Cynthia, and Kate Waterer. These are unquestionably among the very finest of the hardy Rhododendrons. The spikes of *Eremuri* on the right hand side are in Messrs. James Veitch and Sons' group of herbaceous and shrubby plants, which neighboured Messrs. John Waterer's. The correct name and address of the latter firm is Messrs. John Waterer and Sons, American Nursery, Bagshot, Surrey.

British Gardeners' Association.

The great mass meeting of professional gardeners who attended at the Essex Hall, Strand, London, on the second day of the Temple Show, to discuss the formation of a gardeners' association, had a really interesting time. Only one of the speeches was dull, and that exception was worse than dull; it was painful in its disjointedness, incoherency, and general low level of expression. All the other speakers were remarkably good, and the meeting gave them a welcome hearing. Even Mr. Walter P. Wright's remarks prefatory to his proposition of an amendment to the resolution put by the chairman, though obviously against the foregone conclusions of the majority of the audience, were most attentively listened to and occasionally encouraged. But from one so practised, and with a fame already brilliant, that was no wonder. Mr. Wright pleaded for a postponement of the decision to form an association, because that no one outside the committee had had any opportunity of studying the prospectus. This (though no one pointed it out) ought to have accompanied the plea, a copy of which we printed in these pages. To send out a plea and to present a prospectus are different things entirely, and while gardeners were willing to form an association, yet they ought thoroughly to have understood the nature of its details. As it was, the meeting practically accepted the prospectus on chance.

However, the amendment was lost by a large majority, as its supporters knew it would be, and the association was formed, as is now fairly widely known by the publication of the facts by some of our contemporaries, who go to press later in the week than we do. The case for the formation of the society needed no long arguments, but they should have been explicit and forceful, seeing that no one had read the prospectus. We see in the tardy letters which still continue to appear, that there are many gardeners in the United Kingdom who take a deal of convincing, and their policy is to hang back and throw objections in the way, and try to invent impossible evils and to portray dire results that could never happen, instead of trying to get the profession to be unanimous and stand side by side.

Mr. Wm. Pettigrew, of the Parks and Open Spaces, Cardiff, was the first speaker, and he pleaded for the journeymen. The speech was admirable in all respects; and Mr. Pettigrew may be complimented for having tuned the meeting to a spirited attitude. Mr. Ward came next, and after him Mr. Gordon, chairman of the committee, who proposed the resolution, as follows:—

"That a British Gardeners' Association be immediately formed on the lines indicated in the prospectus."

This was agreed to almost unanimously, for probably everybody in the room was bent upon seeing the association formed. Those voting for the amendment only wanted to make sure that the features of the prospectus were satisfactory. As it is, everybody is convinced that good work will soon be accomplished, and any necessary modifications will be for the committee to deal with. We print the prospectus hereunder:—

PROSPECTUS.

The objects for which this association is to be formed have already been made known in a pamphlet entitled, "Plea for a Gardeners' Association," 10,000 copies of which have been distributed by post and otherwise to gardeners throughout the British Isles. These objects are therein stated to be:—

1. To admit as members all who are professionally employed in any branch of horticulture, including private and public gardens, the nursery and seed trade, and market gardens.
2. To establish a register of gardeners, with a view to regulating and controlling the labour market for gardeners.
3. To regulate the wages of gardeners, with due regard to the interests of both employer and employed.
4. To regulate the working hours of gardeners by fixing the limit of a day's work, beyond which all work done shall be counted as overtime, and be paid for.
5. To co-operate for the promotion of the interests of the profession, and the welfare of all who belong to it.

To organise the association so as to make it effective for all branches of the profession in every part of the country, it is proposed to elect an executive council, to appoint a paid secretary, and to rent an office in London, where the secretary will conduct the business of the association, and the executive council hold their meetings. It is also proposed to establish a branch in every large town, and wherever there are sufficient gardeners to form one. As, however, the executive council will require to be elected by the members of the association, the work of organisation will be conducted by a committee of selection, comprising those members of the provisional committee who are willing to serve, and twelve other gardeners to be elected at the meeting. These will co-operate with the secretary until 500 or more members have joined. The election of an executive council will then be proceeded with on the lines laid down in the rules for the general management of the association. To enable the committee of selection to commence operations and to secure

the services of a secretary and an office, the sum of £250 will be needed at once.

An appeal committee, consisting of the general secretary and of one member elected by the branches of each district, will have power to dissolve the executive council. This provision is made to enable country members to have a voice in the general management. Legal advice will be needed, and this will be afforded by Mr. R. S. Garnett, solicitor, Clements' Inn, Strand, who has had experience in the promotion of similar associations, and to whom the provisional committee are indebted for help and advice in preparing this scheme.

QUALIFICATION FOR MEMBERSHIP.

1. To be not less than twenty years of age.
2. If less than twenty-three years of age, to have had at least five years' training in good private, public, or commercial establishments.
3. If more than twenty-three years of age, to have had at least seven consecutive years' professional experience.
4. To be able to produce satisfactory testimony as to general character.

Candidates must obtain from the secretary a form of application, which, when filled up, should be returned to him. If the committee of selection are satisfied that the candidate is qualified for membership, they will instruct the secretary to forward him a certificate. The certificate will be renewed annually on receipt of subscription.

The charge for registration and certificate will be 2s. 6d., and the annual subscription 2s. 6d. These two sums should be forwarded to the secretary together with the form of application. Proof of membership will be the possession of the association's certificate for the current year.

NOTE.—These regulations are special to the period in which the committee of selection will be in office. Regulations for the election of members, &c., are included in the rules for the general management of the association.

REGISTRATION.

A register of members will be kept at the central office, and it will be the duty of the secretary to see that full particulars of every member are entered in a book to be called the General Registration book, which will be open for inspection by members at a day's notice at all reasonable times. It will contain the name, age (date of birth), married or single, present situation of every member.

The association will also keep a record of the professional experience of its members. It will thus be in a position to furnish reliable testimony as to the qualifications and character of applicants for situations. The association will also act as far as its resources will allow as an Employment Registry Office, so that members desiring to change their situations and employers seeking to engage the services of a gardener may be assisted.

WAGES.

The association will endeavour by legitimate means to secure for every section of its members a fair rate of pay. It is generally admitted, even by employers, that the present scale of wages for gardeners is unsatisfactory. The difficulties in the way of improvement will not be easily removed, but they will have to be faced. The result of inquiry in seventy-five gardens all over the country in which skilled journeymen are employed shows that the average wages are 17s. with bothy, &c., and if the latter perquisite is valued at 3s., the total weekly wages of a man who has been trained for at least five years in his profession are 20s. The appointed legislators of Great Britain have lately stipulated in Parliament that the lowest weekly wages to be paid for unskilled labour shall be 21s. The association hopes to effect an improvement by recommending the following scale of weekly wages for gardeners:—

1. Journeymen 18s. with bothy, &c.; 21s. without.
2. Foremen in gardens and small nurseries } 24s. with bothy or
and single-handed gardeners ... } house; 27s. without.
3. Gardeners and departmental foremen in } 30s. with house;
nurseries with less than 5 assistants } 35s. without.
4. Gardeners and departmental foremen in } 35s. with house;
nurseries with 5 or more assistants ... } 40s. without.

It should be clearly understood that these are minimum rates. Where the duties and responsibilities of the post would justify a higher rate the association will endeavour to obtain it.

WORKING HOURS.

The duties of a gardener often necessitate his working more hours per day than almost any other skilled operative; he has also often to perform duties late at night and on Sunday. Whilst the association will recognise that it is impossible to do away with long hours and extra duties, it will endeavour to secure for its members payment for all overtime. The result of inquiry in seventy-five gardens, public and private, in all parts of the country, is to show that it is usual to pay for overtime, that in many gardens Sunday work is paid for, but that in only a few is night duty treated as overtime and paid for. The asso-

ciation will endeavour to get employers to adopt the following arrangement:—

Summer period (nine months), 56 hours per week (maximum). Five days of ten hours, 6 to 5.30, with 1½ hours for meals, and one day of six hours.

Winter period (three months), forty-eight hours per week (maximum).

All other time worked, including night and Sunday duty, to be counted as overtime and paid for.

GARDENER APPRENTICES.

The association will take steps to control the intake of gardeners by refusing to recognise as suitable training for a youth employment in some menial position, or in a place where there is no gardening worthy of the name. It will rely upon the vigilance of its members to keep out young men who may be otherwise worthy, but who cannot honestly be called gardeners. The requisite five years' training must be in gardens of repute. The association will keep a registry of gardens, nurseries, and other establishments, training in which would constitute a claim to membership, in the belief that both parents and employers will find it advantageous to consult the association where apprentices are concerned.

FOREIGN GARDENERS.

Foreign gardeners, whether temporarily or permanently employed in this country, will be eligible for membership, provided they are qualified, and agree to abide by the rules of the association.

Particulars as to the secretary, address of central office, &c., will be published in the gardening papers as soon as possible. Meanwhile all communications, donations, &c., may be addressed to Mr. W. Watson, Kew Road, Kew, Surrey.

Sums of £10 and £20 respectively were offered at the meeting by way of forming a fund, and it is to be hoped that every gardener (as well as those who have the gardeners' interest at heart) will subscribe to it. The members of what was the provisional committee each became members of the executive council, while the following gentlemen were added:—Mr. T. H. Candler, The Gardens, Warley Place; Mr. W. Brooks, Blackdown House, Haslemere; Mr. J. W. Miles, Mandeville House, Isleworth; Mr. W. Newbury, Gorhambury, St. Albans; Mr. W. Taylor, Tewkesbury Lodge, Forest Hill; Mr. W. E. Close, Fulham; Mr. T. Winter, St. John's Wood; Mr. W. Hales, Physic Gardens, Chelsea; Mr. W. Isbell, Low and Co.; Mr. E. Cadman, T. S. Ware, Ltd., Feltham; Mr. Bean and Mr. Stocks, both of Kew; Mr. R. B. Leach, Woodhill Gardens, Dulwich; Mr. R. J. Frod-brooke, Superintendent, Leyton District Council; Mr. W. P. Wright, editor of "The Gardener," Mr. H. J. Cutbush, nurseryman, Highgate; Mr. J. Lawson, Horticultural College, Swanley; and Mr. J. H. Witty, Superintendent Highgate Cemetery.

Gadding and Gathering.

Messrs. J. Waterer's Rhododendrons.

The varieties of the hardy and half-hardy Rhododendrons that flower during late spring and early summer have no equals, and this fact is annually re-impressed upon one's mind at each visit to the beautiful special exhibit made by Messrs. John Waterer and Son, of the American Nurseries, Bagshot, Surrey, in the gardens of the Royal Botanic Society at Regent's Park, London. We ought to have included this exhibit with the others named and described in the report of the society's great exhibition held there during this week, but it is altogether too magnificent and large to come into a general report. Those who have seen former similar displays, covering almost an acre of variedly disposed ground, and covered by canvas, will understand the measure of praise we bestow, and those who have not must take our recommendations on trust. We feel they will not be misled. The colours of the blossoms are considerably different under canvas than they are in the open air, as some choosers of varieties have discovered, to their displeasure it may be, but our descriptions are from flowers as seen in the open.

Baroness Henry Schröder, white and finely spotted, with large truss; very effective.

Concessum has a light centre, margined with the brightest rose; a great favourite.

Delicatissimum is another popular kind, being clear white, delicately tinted pink.

Duchess of Connaught is also white, with lemon-coloured markings, and has a large truss.

Everestianum is rosy-lilac, a distinctive variety, with very large trusses, abundantly borne, and has fine foliage.

Francis B. Hayes has white flowers, with black spots on the upper surface.

Gloriosum furnishes a large, bold flower, blush-white.

John Walter is another well known member, with rich bright crimson trusses; neat, robust, and free-flowering.

John Waterer is an intense glowing carmine Rhododendron, with large trusses of good form, these being abundantly borne.

Lady Eleanor Cathcart is truly one of the most charming of any. It does well as a standard, flowers freely, the blossoms being bright clear rose, with crimson spots.

Madame Carvalho supplies a fine clear white (a fine shade) marked with greenish spots. It, too, is a favourite.

Minnie is a sweet blush-white, with a very large blotch of orange spots; very fine.

Mrs. E. C. Stirling may not have been specially noted before, but it deserves to be, for it is one of the finest varieties in existence.

Mrs. Holford is a handsome salmon-crimson variety, of fine form and habit—one of the best.

Mrs. Tom Agnew could not remain unknown, and it is a worthy memorial. The flowers are pure white, with lemon blotch, and they are large. It ought to be in every collection.

Mrs. Wm. Agnew is also charming—pale rose, brighter at the edge, and has a yellow centre.

Mum furnishes a most beautiful large-flowered white, with lemon eye.

Pink Pearl at the present moment happily needs no praise or description. It is unique.

Princess Hortense is really magnificent, with lilac-rose trusses; and it is said to be a free grower.

Sappho is over twenty years old, yet is ever new. For effectiveness no variety excels it. The well-formed trusses are white, with a black blotch on the upper surface.

Strategist may conclude the list. It is a delicate pink, very distinct and very beautiful.

Canon Ellacombe's Garden.

Probably every close reader of the *Journal of Horticulture* has seen or heard sufficient of Canon Ellacombe's "garden of delights" (as Dr. Masters has termed it) at Bitton, 12 miles from Bristol, to cause him or her to wish to know more. And I am hardly qualified to describe it very fully or well. A week ago I was in Bristol for a holiday, but being born and reared in a garden, the weakness to see other gardens, that attaches to those of my ilk, has a measured impress on me. Taking the train from Bristol to Bitton, the traveller has a mile to walk ere reaching the village; and, turning off the main road by a



Specimen of Messrs. Webb's Calceolarias. (See page 494.)

narrow incline, the ancient lichen-covered church tower appears in front, with the peaceful burial-ground around it. The vicarage and its modest garden are upon the left, and the infant's voices from the parish school reiterate the elementary truth that "Y-e-s" is "Yes."

Canon Ellacombe kindly greeted me, and we were soon discussing the numberless rarities. Not that rarities are usually lovelier than the things of everyday acquaintance; though who will say that *Ribes speciosum*, with its coral-crimson tubular blooms all hanging like pendants on a sunshade, is not of classi-

cal beauty? or that any other shrub has more silvery foliage or more graceful habit than *Artemisia tridentata*? Yet both are uncommon. The former is unpardonably neglected, for no May-flowering shrub has flowers of a similar colour or character; and the *Artemisia* seems to thrive sufficiently well to be recommended.

Over the entrance porch of the vicarage here is a massive, bulging specimen of the Californian Sweet Bay, with odorous leaves shaped like a *Salix*, but coriaceous, and under the eaves are seen clusters of *Clematis montana*, with a specially large-flowered form of the same, which was obtained from Fisher, Son, and Sibray's nursery some years ago. In a well-sheltered corner, but facing the front, there is a *Ceanothus puniceus*, a mass of crimson flowers upon the glossy green foliage, and this plant is now quite established in its open-air position, though the first few seasons demanded vigilance in providing shelter. Both the yellow and white *Banksia* roses flourish, as well as Fortune's Yellow and the rare *Rosa hemispherica*, whose yellow flowers never expand unless the sun shines.

Nandina domestica, of light and plumose growth, forms a bush of 6ft. high, and sharply contrasts with either the horned

Eccremocarpus scaber, which flourishes and flowers the whole winter through, was still blooming freely. *Primula Munroi*, with true white flowers (a lovely contrast to *P. rosea*), and the Mandragon (*Mandragora autumnalis*), with lavender blooms peering out from its close-laid, crinkled leaves, are always interesting. The yellow *Erodium chrysanthum* is not often seen, however, nor does one meet with such huge Gunneras and Fennels as those in Canon Ellacombe's garden at Bitton. Every season continues to bring forth its new delights, and one may wander long amid the mixed borders of curious plants and shrubs without feeling weary.

Besides the long border, which outlines the three sides of a parallelogram, there are brakes for vegetable produce, and a large area is in grass, upon which a tennis-lawn is marked out. Some very fine Sequoias and Cedars supply the necessary means of shade, while also giving the place a clothed appearance; and without the garden walls there are sunny meadows, lush with meat for the beasts, and the Cotswold Hills rise high on the eastward vision.—WANDERING WILLIE.

Insecticides.

(Continued from page 330.)

COOK'S SOFTSOAP EMULSION.

Dissolve one quart of softsoap in two quarts of boiling soft water. Remove from the fire; while still boiling hot add one pint of paraffin oil, and immediately churn the mixture with a small hand syringe, and in three to five minutes a perfect emulsion is made. This always remains permanent and is very easily diluted either with hard or soft water, but the latter and hot is preferable; indeed, the hotter the dilution consistent with its safety to the plant the more effective the insecticide. For soft-bodied insects dilute from fifteen to twenty times; for hard-bodied insects use one part emulsion to ten parts of water.

COOK'S HARDSOAP EMULSION.

Dissolve 1lb of hard soap in two quarts of water; add, when dissolved and boiling hot, one pint of paraffin oil, and churn immediately, then an emulsion is quickly made. This emulsion becomes stringy when cold, and must be diluted with hot water for use. Paraffin oil may be emulsified with sour milk instead of soap. One part sour milk and two parts paraffin oil are churned together, and a thick buttery consistency is formed after three to five minutes' agitation. It should be diluted from ten to twenty times with water before use. It will not keep, or only in air-tight vessels, therefore must be made as required.

In applying paraffin oil emulsion to destroy mites or red spider, 1oz of flowers of sulphur should be added to each gallon of the diluted emulsion, forming into a paste with skim milk before placing in the liquid, and then agitating briskly. Or dissolve 1oz to 1oz of sulphide of potassium in a little hot water, and add to 3galls of diluted emulsion. The sulphuretted paraffin emulsion liquid or wash is not only effective against red spider, but also destructive to epiphytal fungus pests. As a general wash for aphides and similar pests Cook's softsoap emulsion is most desirable and effective in the proportion of 2oz or 3oz emulsion per gallon of water, and with 1oz sulphide of potassium added effectual against red spider or mites, and also external fungus pests.

POTASH FERTILISERS.

Mention must be made of the decided insecticidal value of kainit and muriate of potash against ground insects. Heavy dressings of kainit, 10 cwt. per acre, 7lb per rod, have been used for destroying Pear midge larvæ, applying about the middle of June, and 2½ to 5 cwt. per acre, 1½ to 3½lb per rod, applied in autumn or early in spring, for preventing Carrot grub and other pests from attacking crops.

PYRETHRUM.

This article is a very fine and light brown powder made from the flower-heads of species of *Pyrethrum*. Persian insect powder is made from the heads of *Pyrethrum roseum*, a native of the Caucasus region. Dalmatian insect powder from *Pyrethrum cinerariæfolium*; Buhach insect powder from cultivated plants of *P. cinerariæfolium* in California. All the brands are good when fresh and pure, for by long exposure much of the insecticidal value is lost. Pyrethrum is used mainly as a dry powder, and dusted over the affected plant. For use in dry powder, it may advantageously be mixed with six parts of flour. As a solution in water, 1oz powder to 3galls water. If hot water be used, cover up until cool enough for application. The powder dissolved in alcohol or methylated spirit, 4oz powder and 1 gill of methylated spirit, is an excellent insecticide for plants under glass, diluting the extract with 12galls of water.—EXPERIENCE.

(To be continued.)



The Veitchian Vase. (See page 493.)

Holly—*Ilex cornuta*—or the handsome *I. camelliaefolia*. *Coronilla Emerus*, whose flowers and foliage on shrubby, erect branches, remind one of *Lotus corniculatus* that grows on sunny banks, is generally well appreciated; and *Elæagnus argentea*, *Choisya ternata*, *Koelreuteria paniculata*, *Parrotia persica*, *Cotoneaster Hookeriana*, *Daphne Blagayana*, *Plagianthus Lyalli*, *Fabiana imbricata*, *Olearia macrodonta* (handsome), together with the Persimmon (*Diospyros virginiana*) and Pomegranate (*Punica Granatum*) are all more or less known to those who love beautiful open-air shrubs.

The hardy Orange (*Ægle sepiaria* or *Citrus trifoliata*) was healthier, and therefore more interesting as a shrub than in any place I have seen it hitherto; and the merits of *Berberis congestiflora*, with its heavy, close clusters of the brightest golden flowers, were firmly impressed upon me. This was given the advantage of a wall, and was flowering immensely.

Among the herbaceous plants and flowers that will interest my readers there were a true black small-flowered *Viola*—a perfect little gem—beautiful clumps of the true *Cheiranthus mutabilis*, as well as the golden Harper-Crewe, and the old double yellow and double red. *Trillium californicum* has exceedingly large white flowers; and *Aquilegia flabellata*, with white flowers tinged with the same shade as one finds in the inner petals of *Anemone Robinsoniana*, is a very lovely early-flowering species, easily raised from seeds, as I was informed. *Geranium malvæflorum* and *G. tuberosum* are at their best; while the

NOTES

NOTICES

The Cactus House, Kew.

The rebuilding of this structure is now being undertaken in the Royal Gardens, Kew. The new house will be of the same dimensions as the old erection, but it will be heightened by the addition of a lantern ventilator. The glass will be broad and deep.

Mr. F. Q. Clatworthy.

Writing from Exeter, Mr. Charles Berry, County Instructor in Horticulture, announces that Mr. F. Q. Clatworthy, head gardener to F. Bradshaw, Esq., Lifton Park, Lifton, is resigning his charge there. He is a very excellent and able gardener, and is open for re-engagement.

Royal Meteorological Society.

The next ordinary meeting will be held in the rooms of the society, 70, Victoria Street, Westminster, S.W., on the 15th inst. at 4.30 p.m., when the following papers will be read:—"Effects of a Lightning Stroke at Earl's Fee, Bowers Gifford, Essex, April 13, 1904," by Rev. C. F. Box; "An Instrument for Determining the True Direction and Velocity of the Wind at Sea," by A. Lawrence Rotch, M.A., F.R.Met.Soc. Tea and coffee will be served from 4 to 4.30 p.m.

The New British Gardeners' Association.

This was established with some éclat on Wednesday evening, June 1. Among those on the platform there were representatives of public parks, botanic gardens, private and commercial establishments, and of the gardening Press. The executive council also very fairly represents the different sections of professional gardening. Unanimity, as enjoined in our last week's leader, is now what is wanted, with subscriptions to enable the work to proceed. Elsewhere we publish a brief report of the meeting, and we print the prospectus in full, together with the names of the members of the executive council. Mr. W. Close, who used our pages, it will be remembered, to ask for a poll of the opinions of gardeners, which he hoped to present to the meeting, was able to say that he received fifty-three letters, and these showed that thirty-nine were in favour of an association embracing all branches; twelve desired it to be confined to private gardeners only; one suggested a nurserymen's association, and one was opposed to an association of any form.

Notes from Newton Mearns, N.B.

May has now gone, and with its departure has left behind it a trace of summer weather. The first two weeks of the month were very cold and changeable, while the latter two were mild and showery. The chief features of the month were the absence of east winds and of spring frosts. Not for many years have we had such high temperatures. With the belated spring and the absence of sharp frosts, the country at present is showing a most picturesque appearance. The greenness of the hedges and the trees, together with the brightness of the pasture lands, tends to show us that a good summer lies in front, and we will no doubt welcome it, as it is now four years since we had a decent season. Gooseberries, Strawberries, Pears, and Plums have now passed their blossoming, and already a goodly amount of fruit has set, showing us that 1904 will be a record year for fruit. The Apple trees at present are in their best state, and all over the country quite a mass of "flourish" is to be seen. The Apple tree when loaded with fruit is a very comely sight, but give me, for beauty, the Apple tree in bloom. The whole country does not present a more lovely sight than an orchard of Apple blossom. The bees are exceptionally busy, and with plenty of forage, hives are being brought up to the standard. No swarms have come away yet, but last Sunday (29th ult.) a hive threatened to come off, but was prevented by the timely assistance of extra frames and supers. Should the fine weather continue, we are looking forward to having some good supers this season, which should repay us for the past two or three seasons, these being completely a failure.—N. R.

The Gardeners' Royal Benevolent Institution.

The anniversary festival in aid of the funds will be held in the Whitehall Rooms at the Hotel Metropole on Tuesday, June 28, at 7 p.m., when Harry J. Veitch, Esq. (treasurer) will preside.

The Alake of Abeokuta.

The West African chief who is now sojourning in England visited the Royal Gardens, Kew, on Saturday, and was escorted by the director. During his visit to the greenhouse the gorgeous Calceolarias chiefly attracted the Alake's attention.

The Veitchian Vase.

The Veitchian vase or cup, value 55 guineas, which was presented by Messrs. James Veitch and Sons, Ltd., Chelsea, to mark the completion of the firm's fiftieth business year in London, was won by Messrs. Wm. Paul and Son, Waltham Cross, at the Temple Flower Show. A figure of it is given on page 499.

Barr's Green Primrose.

Blue Primroses are now sufficiently numerous to satisfy most folks, but the true green Primrose has yet to be exhibited. It will come, however, for Messrs. Barr and Sons possess a perfectly green flowered sort, which they name Novelty. When this is as well developed as they desire it, the variety will be placed up for certificate.

Notes from Hamilton.

A wave of heat is meanwhile passing over the district. Yesterday and to-day, 3rd and 4th, thermometer in shade registered 80deg Fahr. Flower seeds sown eight days ago are now above the ground. Everything has been marvellously forwarded by the sudden change. Rhododendrons are flowering profusely. Fruit prospects are good all over the district, and there is now little or no fear of danger from frost. At present everything points to a good all-round season.—D. C.

Crops in the Vale of Evesham.

The rain which came on May 21, the warm showers of last week, and the heavy rain of Thursday and Friday last have been very welcome to gardeners and farmers alike. Although there was plenty of moisture in the subsoil, the surface was very dry, and the absence of rain was becoming serious. Last week the growth of all crops was wonderfully rapid, and it would be difficult to over-estimate the beneficial effects of the downpour. The washing the fruit trees had, on Friday particularly, should help to clear them from blight. Aphis blight has recently appeared extensively in many of the gardens in the Vale of Evesham, and has been laying a heavy toll upon the Plums. A great deal of the fruit has also fallen off the Plum trees, and there are many Pear trees which gave wonderful promise, but will carry very little fruit. Nevertheless, there is likely to be an abundance of fruit of all sorts, although Plums will perhaps not be the great crop at one time anticipated. Growers are expecting to make satisfactory prices all through, and many have already sold large quantities of Plums. One grower sold 100 tons of Plums several months ago. After the long rainy season of winter, conditions have greatly favoured the gardener, and the outlook this season is very promising. On the whole, the spring crops have sold very well in spite of bad trade in many of the big centres. Green Onions have done badly all through, and Gillyflowers were not a very good trade, but most other crops have done well. Cabbages have sometimes made high prices, and good Cabbages have sold well all through. It is not thought that they will be very cheap now, as Peas will be late. Peas generally are not looking well, but may quickly improve now. Radishes were a profitable crop. Lettuces have not done so well as was anticipated. Asparagus has come into the market steadily. There has never been a glut, although the supply on some days has been great, and the price has never been better maintained. In one of the Evesham markets alone, for the week ended May 21, nearly a million of Asparagus was sold by auction, and it probably averaged 1s. 6d. per 100. The public taste for Asparagus seems to grow, and there is much competition among salesmen for the Evesham product. Many Covent Garden and other salesmen spend a week or two before the Asparagus season in canvassing growers in the Evesham district.



A Specimen *Calceolaria*.

On page 491 we figure a well-grown, floriferous, large-flowered herbaceous *Calceolaria* from a photograph taken at Wordsley, Stourbridge, where Messrs. E. Webb and Sons' seed business is. The plants from seed, we believe, are cultivated at Kinver, and the methods are evidently highly successful.

Hybrid *Gerberas*.

Mr. Irwin Lynch, Curator of the Botanic Garden, Cambridge, contributed a very admirable small collection of hybrid *Gerberas*, the result of crossing *G. Jamesoni* and *G. viridifolia*. Some of the hybrids have also been crossed with the original species. The *G. x Sir Michael* is bright rose-pink; *G. x Emmanuel* is lighter in shade; and *G. x Brilliant* has more of an orange hue than is found in *G. Jamesoni*. *G. x Village Blacksmith* and *G. x Trinity*, light carmine-pink, are each very attractive.—(Omitted from Temple Show report.)

Ostrich Fern.

For filling a shady place quickly, the ostrich fern, *Struthiopteris*, is very good. Is it generally known that there is a form of it which never produces fertile fronds? I think there is such a one; and this is the one that spreads so freely, quickly forming a large clump. The one which bears fertile fronds spreads but little. This has been my observation, and others have noticed large masses of it which in many years have never borne fronds of a fertile character.—G.

Pruning *Rhododendrons*.

At this season of the year, says Mr. Meehan, in the north, *Rhododendrons* are commencing to flower. The nurseryman carrying a stock of them can tell by this time what are likely to be sold of what he still has on hand, and it is the practice (and a good one, too) to cut or break off the flower buds from all that are not likely to be sold. The plants are the better for it, the support the buds would have demanded going to increase the strength of the growing shoots. Where the flower bud is, two or three growth buds will start, and these will be stronger if the flower bud is not allowed to expand. These shoots will not bloom the coming season, but the strong shoots with no buds on this season are the ones that will. Customers who demand bushes with all the flower buds possible on them, make a mistake, and nearly all do it. There is a great display the same season, but none the next. *Rhododendrons* which are not shapely may be safely pruned into shape. They break freely from the old wood when pruned down to it.

Spiræa confusa in Pots.

At Eastertime a most appropriate plant for decorative purposes is this pretty *Spiræa*. Long sprays wreathed with their clusters of tiny white blossoms, and the glaucous tinted leafage combine to make these a distinct and pleasing change among forced plants in the greenhouse. As a room plant, too, they lend themselves most willingly. Well grown plants may be had in 7in and larger sized pots, and their shrubby nature when careful cultivation has been given make them a complete and well-furnished object for vases in hall or drawing room. This *Spiræa* is a small growing, deciduous bush, equally adapted to the shrubbery border or as a specimen on grass. It forms naturally long arching sprays, clothed with a profusion of innocent blossom, quite distinct from any other flowering subject. If kept well attended with water during summer, and the pots preferably plunged to aid uniformity of root moisture, they will flower as well the second year as when first bought in from the nursery, which is a point largely in their favour. In the event of large specimens being required, the simple rule of supplying larger pots and fresh soil quickly furnish them in accordance with the liberality of their treatment. They have not the perfume of the Lilac to recommend them, but, on the other hand, they have no offending scent to mar their innocent beauty, but grouped among other forced plants they afford a feature both interesting and useful.—W. S.

Pelargonium Lady Decies.

This is a decorative variety, with large clusters of well-formed, rounded flowers. These are of a warm blush hue, lightened towards the base with silvery white, and having streaked blotches of purple on the upper, inner surface of the blossoms. The plants are dwarf and vigorous, and bushy, very free-flowering. A.M., R.H.S., June 1st, when staged by Mr. Charles Turner.

Veitch's Group of Foliage Plants.

The group of exotic foliage plants figured on the opposite page was staged by Messrs. James Veitch and Sons, Ltd., of the Royal Exotic Nursery, Chelsea, at the Temple Show. It was one of the finest and best-finished efforts they have ever made, and the quality of the plants was exceedingly high. Mr. Tivey, the grower and executor of the arrangement, deserves congratulations. It contained the following plants:—A fine specimen of *Dracæna Godseffiana*, *Phyllotænium Lindeni*, a superb plant of *Nepenthes Mastersiana* with about two dozen pitchers, many of them of great size, and beautifully coloured; *Nepenthes Burkei* and *N. B. excellens*, the latter with broader pitchers, beautifully marked; *N. sanguinea*, with large pitchers of a deep colour; *Begonias* *Albert Maumené* and *Reine Jarry des Loges*, two new varieties of the Rex type; also *Medinilla magnifica*, *Crotons* *Sunbeam*, *Warreni*, *Sunshine*, *Thomsoni*, and *Nestor*. A good specimen of *Caryota* occupied the centre.

Fruit Paper Mulberry.

For many years the Paper Mulberry (*Broussonetia papyrifera*) was a favourite street tree in Philadelphia and other cities, but of late years the Poplar and the Plane have superseded it. This is a tree which takes kindly to city life, and there is still room for its use by those who desire a good shade tree. Until a year or two back the female form of this tree seemed unknown here. I had never seen it, nor heard of anyone who had. It is a very ornamental tree, the flowers coming in what may be termed red, fleshy balls, which certainly are interesting and uncommon-looking. It is well worthy of a place as an ornamental tree. Objection against the Paper Mulberry (says the "Florist's Exchange") is its habit of suckering where its roots get injured. So long as uninjured there are no suckers, but let the roots be broken, and suckers appear at once. In cities, where streets are paved as well as sidewalks, there would be no chance for suckers, and the tree could be used in such positions very well. The absence of the female Paper Mulberry for so many years is an illustration of how trees spread from a single source. This tree existed by thousands in these parts for years, and all of the male variety; and, without a doubt, owed their origin to stock obtained by some importer in early days, who had propagated and distributed it; otherwise it could hardly be that no female trees of it had ever been seen here before a lot of trees were imported from Europe.

Philadelphus for Forcing.

The flowers of the Mock Orange are familiar with almost everyone in the early summer, when their flowers pervade the atmosphere with their refreshing scent, but as pot plants they are not so common as Lilacs, *Deutzias*, *Spiræas*, or *Guelder* *Roses*. The smaller growing forms, however, are distinctly interesting, either in the greenhouse, conservatory, or living room, providing their fragrance is not too overbearing. Some sorts are almost devoid of scent, others only charge the air to a perceptibly small degree, and in any case a moderate use of forced pot plants can be made interesting in affording a change of stock. Interspersed with *Azaleas*, *mollis* and *indica*, they are welcomed in their quieter tones of colour. As cut flowers the Mock Orange, culled from the open air bush in summer, often bring disappointment in the shortness of their term of freshness, but in summer other flowers as well as these are given to undesirable freaks. Grown under glass, and the plants duly hardened by exposure to the coolness of the greenhouse before they are cut, this failing is not so pronounced. They are easily forced, and as easily procured from nurserymen as the other familiar flowers of springtime, and it is not a little surprising that they are so rare in pots, and yet so common in the shrubbery. With ordinary attention after blooming they may be made available for a second season's display without re-potting, gently forced, which cannot be said of some other forced shrubs, and Lilacs in particular. These often disappoint in their meagreness of blossom after their first year.—W. S.

Campanula grandis.

Fine as *Campanula grandis* undoubtedly is, it loses some of its attractions for the many because of the paucity of its flowers as compared with the space a plant will occupy. In this respect it compares unfavourably with such Bellflowers as *C. persicifolia*, which is so free as a rule. *Campanula grandis*, however, grows so freely and produces so many barren rosettes of leaves that in the course of a year or two it will form a spreading mass of leaves from which only a few flowering stalks will be sent up. This induces many people to think that the soil of their gardens or the treatment they are giving the plants is not what they require. But this is a natural feature of *C. grandis*, and, do what you please, no other results are attainable from it. Yet it is so fine when in flower that this may be forgiven for the sake of the fine spikes from two to three feet high, or even more, which have large, somewhat salver-shaped flowers closely set on the spike.

There are two varieties, one with bluish-lilac or pale blue

Chilian Evening Primrose (*Oenothera taraxacifolia*).

The true night-blooming Evening Primroses have about them an interest and a fascination not possessed by their sister flowers, which prefer the garish light of the day, and care not for the grey twilight and the cooler airs of the evening. It delights one to see that fast-closed bud gradually unfolding as the afternoon draws to its close, and eventually exposing the glorious flowers some of the *Oenotheras* display. There may be some finer species than the Chilian or Dandelion-leaved Evening Primrose, but to those who know it there are none more attractive; while its cultivation presents fewer difficulties than that of the magnificent *O. marginata*, perhaps the queen of *Oenotheras*. It is true that it is hardly ever long-lived, except in warm soils and sheltered gardens, but it is so readily raised from seeds that it gives little trouble to renew if lost at any time.

The only trouble of consequence is caused by the resemblance of the foliage to that of a deeply-cut Dandelion leaf, so that a keen eye must be kept on the weeders when in the neighbour-



Messrs. J. Veitch and Sons' Group of Foliage Plants at the Temple Show.

flowers, and one with white ones. Although these flowers individually do not last long, if they are pinched off when they are past, fresh ones will be produced from the base of the old pedicels. In this it is like a few of the other tall Bellflowers. Its proper time for flowering is June and July, but the pinching process already referred to will prolong the period considerably. *Campanula grandis* is not at all particular as to soil; and I have seen it doing well in light and poor soil, as well as in that of a heavy nature. The exact position to plant it in depends largely upon the character of the soil, but unless it is wet a little shade should be given. Indeed, wherever it is possible to give a little shade, it should be done, as in strong sun, particularly after rain during the previous night, the blooms last a very short time. As may be expected with a plant which produces offshoots so freely, *C. grandis* is easily propagated by division, but seeds are obtainable from some seedsmen, and these should be sown under glass in March or April, or in the open in a small reserve bed in May or June. *Campanula grandis* is perfectly hardy.—S. ARNOTT.

hood of the plants, or they will be destroyed as pestilent weeds. More than once has this happened here, and one could only regret the excess of zeal on the part of the weeder, or one's own forgetfulness in not warning that useful individual of the presence of a mimic of the Dandelion. The foliage is, as already said, very like that of the Dandelion, though a knowledge of the plants will soon teach one to spare the *Oenothera*. It is prettily cut and a study in itself. The flowers, which open pure white, are large and beautiful; so large are they, indeed, that they seem even almost too great for the low plant upon which they grow. Of course, this size is one of the means by which the flower attracts the night-flying moths and other creatures which fertilise its flowers, and which might miss seeing a small bloom. They generally open about four o'clock with me, and are as much as 5in across. After being open for some time they gradually assume a deep pink colour, and when morning comes soon pass away altogether. Seeds are easily obtained from most seedsmen, and these germinate readily under ordinary treatment.—SOLWAY FIRTH.



The Seed Trade and the Gardeners' Association.

As a seedsman's assistant, may I inquire through your pages whether I am eligible for membership, and to enjoy the advantages derivable from membership, of the British Gardeners' Association? Might I throw out the suggestion of having a northern office (say in Edinburgh) for Scotland and the North of England, to be managed by a secretary (not necessarily permanently engaged), who would co-operate with, but be subservient to the chief secretary in London? Northern gardeners must be brought close into touch with headquarters, and some such means as this would assist.—A.

Tomato Acquisition.

The desire of the present day Tomato grower is not a multiplicity of varieties, as marked an earlier period, when the cwt. served the same purpose as twenty times the amount do now. Large fruits, the fashion of past ages, have a value exactly opposite to that of those well remembered days. Very few sorts represent the present day demands, and all must have the smooth outline, bright skin, and medium sample to be retained. Lister's and Holmes' have held sway for some time, both in commercial and private sources, but allowing these all that are due to them individually, there is a distinctly pleasing merit embodied in the variety above named.

At Tyntesfield recently, standing on the floors of the lofty vineries, I saw Acquisition Tomatoes growing with a dwarfiness of habit and such prolific fruitfulness as I have rarely seen, especially when one remembers the position occupied. Though short jointed and robust in leaf, the crop was remarkably heavy; the fruits, though they had not quite the same smoothness of outline as that of the better selections of Lister's, were nevertheless faultless in other respects. The plants under notice were not more than 2ft high, yet the cordon of fruit seemed continuous from the pot to their tips. The lofty structures in these gardens, their sharp pitch, and ample ventilation, seemed to provide ideal conditions both for Vines and Tomatoes, conditions certainly not found in such combinations generally. Mr. Wilkinson is a keenly observant gardener, but the success with vinery-grown Tomatoes seemed to have surpassed even his own expectations.—WESTERN.

British Gardeners' Association.

I have read with interest the note by "Alethos" anent the insuperable (?) difficulties which stand in the way of the successful working of a gardener's association. The substance of "Alethos'" note is that all gardening is a luxury, and he asks, "How far does the employer consider it necessary to employ gardeners at all?" It may not be imperative that he should do so, yet neither is it imperative that he should spend enormous sums on many other luxuries. If Lord So-and-So spends hundreds or thousands of pounds on decorating the ceiling of his drawing room, requiring skilled men to do the work, then why should he not pay a fair wage to the men who decorate his garden and grounds, and produce a large portion of his food? A certain amount of comfort and pleasure may be derived from many sources, but that particular kind of comfort and pleasure derived from gardening cannot, I think, be derived from any other source whatever, and a garden in the hands of capable men is not half so expensive as many other luxuries. "Alethos" gives an example of how an employer may, through force of circumstances, feel compelled to turn his establishment into a market garden, which he would not do unless there was money in it. Are the market gardeners of Great Britain contributing nothing to the national wealth? I rather think they are, and will contribute more in the near future. Then why should they not be paid a reasonable wage? From time immemorial gardening has occupied a leading place among the arts and crafts of all civilised nations, and the "policy of tolerance" stated by "Alethos" is absurd. Finally, the concluding sentence of "Alethos'" letter, that, in the event of a strike, "labourers would meet all the requirements," gives evidence of sheer ignorance of the principles of horticulture.—GOWRIE.

An Interesting Letter from China.

After a pleasant voyage I duly arrived here on the 2nd of March. Respecting the voyage I need say but little; it was a real holiday. On sea one's only thoughts are for meal times and amusements. As a cure for worry there is nothing to compare to it. No one ever appears to think of anything beyond enjoyment, and everyone appears happy and ready to laugh at anything. If ever you contemplate a voyage, try to travel by a slow steamer. The mail boats are much too hurried for one desiring instruction; for, excepting at Hong Kong, we had at the other ports such a short time that we were unable to see anything. At Hong Kong we had a whole day, most of which I spent in the gardens. These were beautifully built in terraces on the side of a hill. The flower garden in the last days of March was gay with such things as Freesias, Poinsettias, Begonias, Phlox Drummondii, Verbenas, &c.; but what struck me most were the bushes of Bougainvillea on the lawn, and Jasminum primulinum. There this Jasmine was in reality a most desirable and highly decorative shrub. A walk round with Mr. Tucher (who is now on his way home for holidays) was both very pleasant and instructive.

Now for a description of my adopted town, popularly known as the "Model Settlement," but, honestly speaking, it is the most up-to-date and best town in the East, a fact I gleaned long before I saw it, from men who have for years traded in all ports, from Port Said to Port Arthur. The foreign settlement of Shanghai covers an area of ten square miles. This area is not entirely built on, but it is very nearly, and at last year's rate of increase—i.e., 450 new houses per month, it soon will be. In addition to this, however, residences, mills, factories, &c., are built miles beyond the boundary. Since the Chino-Japanese war it has increased to five times its former size, and is rapidly extending, till soon we shall have a miniature London. In addition to the "foreign settlement" there is a French settlement, which is quite distinct from ours. Then there is the native city, also with a large population. Our settlement is governed by the municipal council, a body consisting chiefly of Britons, the chairman being a Scotsman. This body frames all the laws, rules, and regulations by which we are governed, the only exception being that crimes are tried by the Consular body. As the settlement is open, we have Consuls from every country in Europe, also from the U.S. America and Japan.

The whole country side is as flat as it is possible to be, and inclined to be marshy. It could not be otherwise, as it is so little above the water level, and subject to tidal influence. The whole place is intersected by creeks, narrow water-ways, navigable as far as the barges are concerned, and some are even navigable for small steamers. By those numerous water-ways you can almost go anywhere, but you must not be in too great a hurry—that is, if you are poor, for boats of all sizes with motor power and steam are available to those who can pay. The same applies to all things conveyed from the interior; it does not cost much to convey, but it takes time. For instance, if I want turf, I must order it ten days before I want it, yet on its arrival it only costs 0.75 cts. (sic.) per 100 sq. ft. You may ask why have I to send for turf; are there no pastures at hand? No, there is no pasture land to speak of in the vicinity. The Chinaman is at heart an agriculturist, and he cultivates every available inch of land. He does not even have grassy embankments; that would be waste, for he will get two crops from it in the year, and more if it is near his home—then he will grow vegetables on it. For the same reason he detests trees; in fact, beyond those planted along the roads and a few on the graves, trees here are not to be seen.

The land belongs to the people, it either being inherited or purchased; they but rarely rent it, the only rent they pay being a nominal land tax. So it is apparent that if he is to support himself and family on the small piece he usually has, the native must make the most of it. As a farmer he is very primitive. When he uses a plough it only resembles two handles with a piece of iron attached. Generally the land is cultivated by a "hoe." This resembles a Potato digging fork with four broad tines, bent so as to resemble a hoe fork. With this he will turn over the ground rapidly to a depth of 6 to 9ins. Owing to the wet state of the soil his land is ridged, forming round ridges 4ft. wide, the hollows between each being about 1ft. deep. Despite his primitive methods his crops are excellent; but then, of course, his land is rich, and I frequently wonder what would be the result were the land tilled according to our ideas.

In respect to culture, there are three things he pins his faith on. The first is "night soil." This is forcibly brought to one's notice, firstly by its effluvia, secondly if one wishes to avoid typhoid fever he must never eat uncooked vegetables. Secondly, he utilises cow manure. Horse manure is of no value to him, and so much is this the case that when I want some I just fetch it, taking the precaution to remove it about 5 a.m. Lastly, digging in everything he does not want off the land—green crops especially. If the weather ruins his barley, he merely digs it in whilst green, assured that his next crop will be improved thereby. There are one or two hints we enlightened creatures might glean from the "Heathen Chinese,"—i.e.,

that land has a value when cultivated on agri-horticulture lines; cultivated for agricultural purposes as though meant for horticulture; cropping in winter, even though the crop has to be dug in, and cultivating a greater assortment of crops. The native not only grows wheat and cotton for sale, but he also grows barley, rice, and vegetables for his own supply. All this, of course, means small holdings.

His position as a gardener I neither condemn nor praise, because his ideas are so different from ours. Then here, to a certain extent, he has acquired some European ideas, so that till I come across the real unadulterated article I must reserve my opinion. This I will say for him, judging by my own men, the plants he understands he grows well, some as well as I have ever seen. For instance, his Show and Fancy Pelargoniums must resemble those of our forefathers. I have seen plants here 3, 4, 5 ft. through. At heart he is a real plant lover. Like his brother at home, a flower show deserves all he can possibly do to make preparation for it. He will visit every garden in the vicinity, and compare notes, and borrow cuttings from his brother tradesmen. They also have a strong guild which meets frequently at a tea-house, where, after refreshing themselves with tea, one of the number gives a lecture. The chairman of this guild is a very intelligent, influential, and wealthy man. Whenever I want anything I just call on him, and if it is obtainable within six days' journey, he will get it! Nearly all the gardeners here are nurserymen. The town literally swarms with them, and nearly all have a few glass houses. His idea of plants is not usually the growing of them so much as the training of them. With bamboo he can imitate nearly every shape, and so neatly does he do this that his framework is never over-evident. In laying out a garden, the same principle applies. Thus a rockery is intersected by innumerable walks, steps, &c. The stones are cemented together to form walls with numerous pockets. Flat surfaces he also objects to, so that his garden is all rounded mounds, depressions, walks, and arbours. You are on a different level every minute. Straight lines he never has, more than flat surfaces.

As a labourer he is very fair—never in a hurry. Hurry he can't understand. His favourite word (one you hear very frequently) is "maskie"—i.e., never mind, or, any time will do. In dealing with us foreigners another favourite phrase is, "I no savie"—I don't understand. This is a useful phrase. Rage him for neglect, ask him to do what he does not want to, or ask him why he did something wrong, his answer is the same; but to give my foremen justice, they rarely use it, except now and again, then possibly I am to blame. They take a deal of pains to understand me.

When one recognises how little English they really know, you would laugh to hear us talk in our pigeon English. A few years of this, if I spend nine hours a day talking to them as I do now, I fear my mother tongue will be sadly distorted. But despite the fact that he is called a liar, rogue, and every other invective under the sun, I rather like the "heathen." It is scarcely fair to call him a heathen, though heathen he is certainly, because he worships idols; yet his is a comfortable religion. Unlike the majority of Asiatics, he is far from being fanatic. Caste, or such like, is unknown. Generally speaking, his religion is more a moral code. He understands honour between man and man, and, although he asks for more than his article for disposal is worth, yet this is more a habit, as he never expects to get what he asks. As a husband he is exemplary, as he never lifts his hand to strike a woman. Sometimes he allows his wife to beat him. I say allows, because he never retaliates, making good his escape as soon as he can. As far as I know, the Chinese woman does not work outside that of housekeeping for her husband, with the exception that a few are nurses and mill workers. This is easily explained when it is recognised that nearly all women are married, and that at an early age. There are husbands for every woman, because a man has as many wives as he can afford to keep. Remember, this about women not earning their living applies to Shanghai, not to China, because I know that at Hong Kong the women repair the roads, &c. The moral standard of the woman is high. She is a faithful wife, and prostitution is almost unknown. Shanghai swarms with the latter class, but they are, I regret to say, chiefly American and Portuguese. If a native woman lives with a foreigner she is looked down upon by the poorest, but this rarely occurs, as the native women rarely consent to this union. Drinking intoxicants is, as far as I am aware, never indulged in by them—tea is their beverage. Opium here has not much effect, as it is not much indulged in.

All this applies to the native in Shanghai, but he differs in many respects from his southern brother. Here he is much more active, stronger, and more independent than are those in the south, where they are more akin to slaves, consequently greater rogues, but I should guess they would be easier kept in command than would the Shanghai native if a rising occurred. The only way I can account for this difference is, that here he takes his part in everything, from governing to the day's labour, whilst in, say, Hong Kong, he is merely a servant. Then even here there are differences 'twixt them. Thus, those employed at draining, making roads, &c., can be sworn at or thrashed, yet it does not make any difference; whilst those I employ I

dare not rage (scold) much, else they walk off; yet the two lots are paid equally. In dealing with them I have closely watched the effects of different treatment. Some men are continually striking them and knocking them down, yet I can't see they make them do more. My impression is that the native looks upon a display of passion as weakness, consequently he loses respect for the angry person.

Now I may tell you a little about my charge. Firstly, the Public Garden is somewhat small, about 3 acres in extent, but if small it contains plenty flower beds. It also has a fountain—two, I might say, one being small. In the centre is a bandstand where the town band plays every evening from May till October. Of summer houses there are four, also an arbour formed of rustic wood and covered with climbers. Then, of course, there is a rockery—"à la Chinese." The Chinese garden is somewhat similar in size and form. The glass houses are six in number, consisting of conservatory, greenhouse, intermediate house, stove, and two propagating pits. Here my office is located. It is commodious, fitted with electric fittings, and also contains what I possess of a library—little enough, but it will be added to. Here I receive the foremen's report each morning. In addition to this there are two recreation parks (one 2 acres in extent, the other 70 acres), the Municipal Council Compound, five cemeteries (the largest 10 acres, the smallest 4 acres in extent), and the foreshores of the river, consisting of two miles of lawns, 400 ft. wide. Then I have the planting and maintenance of the trees on the roads and streets to attend to, also the laying out of all ground in connection with municipal buildings, from jails to council chambers. As nearly all these places have many flower gardens it takes some nursery ground to supply them. Altogether we possess 25 acres of nursery ground, divided into five nurseries and somewhat scattered, one being six miles distant from the gardens. Collectively they contain at present 115,300 trees and shrubs (chiefly young trees for street planting), in addition to a supply of flowering plants. To work this requires on an average about 150 men, though I have at times as many as 400. They are, as a rule, easily obtained. One tells the foreman at night, and next morning he will get them. Those extra men are usually required for additional work over and above that mentioned. Of foremen I have nine permanent hands. The Public Garden, Chinese Garden, and glass houses are under another hand called gardener. Then there is what is known as No. 1—he who gives orders to all the foremen, checks their work and labour, in fact superintends everything.

In the office I have a clerk, whose labour is light, yet I could not dispense with him, for he is all I have to depend on for translations. The 150 employés I referred to only do the upkeeping, all extra work I let out on contract, merely supervising it. The contractors in making tenders for the work of course do so in their own language, so it is here that the clerk comes in useful. Of what I term outside work, I have at present in hand the raising, levelling, and turfing of 1 acre of ground at a police station, laying out grounds around a nursing home, and preparing plans and estimates for laying out a new park of 40 acres, and only a portion will be done this year. Also the laying out of grounds round a new hospital, consisting of 3 acres, and the making of an addition to the Public Garden. They kept plenty work in hand pending my arrival. This class of work entails a good deal of thought, because before I can ask for tenders from contractors, I have to measure and take levels to ascertain what raising is required, &c., then from that I make an estimate of the approximate cost. By this estimate I can check their tenders. Then in measurements I have to deal with that of the native as well as the British. The native land measure is "mow," about one-sixth acre, and "cong," about 100 sq. ft. His cubic measure is in "fongs," 100 cubic ft. equals 1 fong. His linear measure is a "chang," 100 ft. Then his quotations are all in taels and tael cents. A tael equals about 2s. 6d., containing 100 cents. This has to be converted into dollars, and dollar cents, the dollar being equal to about 1s. 10d., but this varies nearly every day. The tael being somewhat of a standard coin, does not fluctuate so much as the dollar, so each day you have to calculate how many dollars are in so many taels.

This time I do not propose telling you about the plants, what we grow, when we sow, &c. That information I will reserve for another time, when I will tell you about gardening in China. The only thing I will say is that *Magnolia grandiflora* is here as handsome a tree as one could wish to see, and that the best flowering tree at present is *Cercis chinensis*. It is beautiful just now, the whole branches (leafless) are wreathed in flowers. Houses are very dear here, as also are luxuries, but living is very cheap. A dinner of four courses costs a mere trifle, and a cook costs about £13 a year; for this he provides his own food.—DONALD MACGREGOR, Superintendent Parks and Open Spaces, Shanghai.

A COMPLIMENT TO "OLD JIM."—A correspondent says: "I hope 'Old Jim' may long live to give us of his interesting experiences, as no truer words than his could be written, and they are enough to remove any gardener out of the dumps, for no one could read 'Jim' without having a good laugh, I am sure."

HORTICULTURAL EXHIBITION AT REGENT'S PARK.

LONDON was not the proud possessor of the first botanical garden in these islands, although Chelsea Physic Garden and the experimental grounds of the Royal Horticultural Society take us far back, and the Royal Gardens at Kew were not accessible enough to be generally visited in bygone days by Londoners. It was the recognition of the fact that London was wanting in this direction that led a number of Metropolitan residential botanists to found the Royal Botanic Society in the year 1839. A short history of the society was prepared by Mr. William Sowerby, father of the present secretary, and from its pages we extracted the main facts, and presented them in the issue of June 11 last year.

THE SOCIETY'S GARDENS.

The area of the Botanic Garden is a little over 18 acres, the highest point being 129ft. above sea level, and it was planned and laid out by Mr. Robert Marnock. The first operation, after clearing the grounds, was forming the lake and the mound which lie to the right, inward from the entrance gates, and the work necessitated the removal of many thousands of yards of stiff clay. A terrace was next formed at the north, on which the conservatory stands, a building constructed of iron, and built by Turner, of Dublin, in 1845, who subsequently built the Palm house at Kew. If the Regent's Park house is not the first built entirely of iron, it may be considered the first iron house of any size in England. Behind the conservatory Mr. Marnock formed the well-known exhibition ground, which is now, however, altered to a level surface.

Between the conservatory and the herbaceous garden lie the plant structures, and the areas of medicinal and economic plants. The society has reason to value this department, and to be anxious for its renewed development, as it is found to be exceedingly useful, not only to medical and other students from the innumerable colleges in London, but to merchants and manufacturers and others; in fact, all persons interested in the economic products of the vegetable kingdom. This side of the garden is generally considered as the locality for plant study, and is much frequented, as we ourselves evidenced. The number of free students' tickets, for three months each, issued annually, ranges from 600 to over 800, and the cut specimens given for study at one time amounted to 40,000 to 50,000 per annum, the supply of these being somewhat of a drain upon the society.

Another useful feature in the herbaceous portion of the grounds are the meteorological instruments and apparatus. The sunshine recorder is on the tower on the mound, and in an enclosed space near by are the earth thermometers, from 3in to 16ft deep, and of special interest to gardeners and general cultivators. Daily records of all the instruments are kept from observations taken three times daily, and printed, we believe, in the London "Evening Standard," as well as the society's "Quarterly Record."

In addition to the large conservatory (of the interior of which we furnish an illustration, on page 501), there is a house and warm water tank for the Victoria Regia and tropical aquatic vegetation, besides ferneries, orchid houses, stoves, greenhouses, propagating pits, frames for alpinists, and all kinds of ornamental bedding plants, and good workshops, potting shed, and offices. The head gardener (Mr. E. F. Hawes) occupies a substantial cottage close to the glass department.

At the extreme west of the garden is the museum, secretary's office (Mr. B. Sowerby is secretary), meeting-room, dwelling-house, and the recently erected and well appointed experimental laboratory. The museum is also used as a lecture and reading room, and has a botanical library attached. The students attending the Society's Practical Gardening School come from places far apart, and most of them are youths and maidens between the ages of fifteen and twenty-three. They seem to work with zest, and to enjoy their pleasant and varied occupations. A three years' syllabus is prepared, and this they adhere to, as in the similar schools and colleges elsewhere.

PAST EXHIBITIONS.

The exhibitions held by the Royal Botanic Society have a special distinction, though the spring shows declined during recent years. These began in 1860, though flower shows have been yearly held since 1843, even before the gardens were finally completed; and in 1872 the Society's Evening Fêtes, which are now especially popular, were inaugurated. The Rhododendron exhibitions by Waterer and Sons of Bagshot, the Rose displays by William Paul, and the hardy plant col-

lections staged by Barr and Sons at certain set periods of the summer may also be referred to as work undertaken for the encouragement of horticulture, and in a secondary measure botany. In 1901 the great Nature Study Exhibition found a welcome hospitate in Regent's Park Botanic Garden, and other societies, with a recognised utilitarian aim, have received full freedom for their exhibitions within the bounds of these gardens. With the unabated attachment of its numerous influential Fellows, and under the wise direction of experienced officers, assisted by an honest and efficient staff in all departments, we fear not for the future of the Royal Botanic Society of London; and while its aims broaden, and its work increases, it is impossible for it not to command a high respect.

THE PRESENT EXHIBITION.

The present great exhibition is the largest the society has undertaken. It was divided into sections, the sundries, and some of the educational exhibits being particularly valuable. The classification scheme has probably been drawn up too ambitiously on paper, but nevertheless the exhibition was very varied and highly interesting. Mr. E. F. Hawes superintended the placing of the exhibits.

CLASSIFICATION OF EXHIBITS.

Division A—Horticulture: Exhibition of plants, flowers, fruits, orchids, alpinists, forced and retarded plants, vegetables, and seeds. 2. Market gardening—Methods of grading, packing, preparing for market, &c. 3. Forestry—growing timber trees, methods of staking, protection, pruning, &c. 4. Apparatus and chemicals for destroying insects and fungoid pests; manures—chemical and natural; etherisation apparatus; retarding and cold storage apparatus. 5. Horticultural buildings; heating and hot water apparatus; summer houses, seats, &c. 6. Sundries—gardening tools, machines, implements, &c. 7. New inventions.

Division B—Botanical: 1. Experimental research work. 2. Exhibition of scientific apparatus, microscopes, &c. 3. Plants, seeds, &c., used in medicines.

Division C—Educational: Exhibition of methods of teaching; books; nature study.

Division D—Colonial: Exhibition of fruits, vegetables, &c., grown in the Colonies.

Division E—Art: 1. Exhibition of pictures of flowers, garden designs, plants, &c. 2. Table decorations and decorative uses of flowers.

Division F—Garden Sports: Exhibition of croquet, lawn tennis, bowls, and other garden games.

Horticulture.

PLANT GROUPS.

So many of the exhibits which come under this and allied heads received a sufficiently extended notice when they were staged at the Temple Show last week that we do no more on this occasion than refer to them very briefly. Messrs. William Paul and Son again had a glorious display of Roses, receiving certificates for two varieties and a gold medal.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, staged their remarkably well-flowered orchids and their Carnations, getting a gold medal. Messrs. John Laing and Sons, Forest Hill, S.E., had Begonias, Streptocarpus, and Gloxinias (gold medal). From Messrs. John Peed and Son came a magnificent display of their admirable Caladiums, as well as Gloxinias, and a silver-gilt medal was accorded. Messrs. Blackmore and Langdon, Twerton-on-Avon, Bath, had their wonderfully fine double tuberous Begonias (silver-gilt medal); and Messrs. Pollard, Lee, S.E., had a bronze medal group of new Pelargoniums.

A varied display of Cactus Pelargoniums, Heliotrope Lord Roberts, Roses, and Coronation Marguerite came from Messrs. W. and J. Brown, Peterborough, who had a silver medal.

Hardy annuals in pots, similar to those noted on page 478 of last issue, were forward from Messrs. Watkins and Simpson, 12, Tavistock Street, Covent Garden, and we can compliment the firm on their excellent plants, and it is safe to say that this is the best way to bring the merits of good annuals before the public. They had a silver medal.

Clematises in pots, as well as hardy shrubs, were shown by Messrs. Richard Smith and Co., St. John's Nurseries, Worcester, who received a silver-gilt medal. For Spiræas, Gloxinias, Verbenas, &c., Messrs. Carter and Co. had a large silver medal; and for zonal and decorative Pelargoniums Mr. Godfrey, of Exmouth, had a silver-gilt medal. Another silver-

gilt medal was awarded to Messrs. Cannell and Sons for their collection of Cacti.

Messrs. Cutbush and Son, Highgate, obtained a gold medal for a magnificent display of Carnations, blue Hydrangeas, Callas, and Roses. Messrs. Barr and Sons had a tent filled with pugnacious trees (large silver-gilt medal).

A special marquee was erected on Wednesday for three displays of orchids, these coming respectively from Mr. H. T. Pitt, of Stamford Hill, N.; Mr. Jeremiah Colman, Gatton Park, Reigate; and Messrs. Stanley, Ashton, and Co., Southgate.

Lord Aldenham, Elstree, contributed a huge display of cut shrubs from his unsurpassed collection, and Messrs. Laing had shrubs in the open air.

A beautifully decorated dinner table, done in pink Malmaison and Tree Carnations, with pink shades to the candles, was arranged by Messrs. Searcy, Tansley, and Co., 57, Connaught Street, W., and was the admiration of everybody (gold medal).

CUT FLOWER GROUPS.

The collections of cut flowers were less numerous than the groups of plants in pots. Messrs. Dobbie and Co., Rothesay, N.B., staged long-spurred Aquilegias and Violas, receiving a silver medal. Mr. Amos Perry, Winchmore Hill, N., had a choice group of hardy herbaceous flowers, for which a silver-gilt medal was given. Another collection of cut hardy flowers came from Messrs. T. S. Ware, Ltd., Feltham, who had a large silver medal; and Mr. Godfrey staged his new Oriental Poppies. Lastly, Mr. Reuthe, Fox Hill Nursery, Keston, Kent, for a group of hardy flowers, received a silver-gilt medal.

FRUIT.

Messrs. Thomas Rivers and Son, The Nurseries, Sawbridge-worth, Herts, were the recipients of a gold medal for a highly meritorious collection of pot fruit trees carrying crops. The group was larger than that exhibited at the Temple, and consisted of Plums, Cherries, Peaches, and Nectarines. Mr. S. Mortimer, Farnham, Surrey, had a large collection of Tomatoes, Cucumbers, and Melons (silver-gilt medal).

CERTIFICATES TO PLANTS.

Rose Waltham Rambler (W. Paul and Son).—This beautiful single pink-and-white flowered Polyantha Rose received a F.C.C.

Rose Pharisæer (W. Paul and Son).—This we omitted to see. It received a Certificate of Merit.

Rhododendron Gomer Waterer (J. Waterer and Sons).—This carries an enormous truss of white flowers, slightly blushed. F.C.C. From The American Nursery, Bagshot.

INSECTICIDES AND WEED-KILLERS.

These were numerous shown, and included Vall's Beetle-cute, for exterminating beetles, ants, cockroaches, woodlice, and crickets. Gishurst Compound may also come under this heading, seeing that it is used for the destruction of red spider, green fly, &c. Messrs. Tomlinson and Hayward, Ltd., 18, Bartlett's Buildings, Holborn, E.C., staged samples of their weed-killers, as the Eureka and Daisy; also Eureka Bordeaux Mixture, and Hayward's summer shading. The Acme Chemical Co., Ltd., Tonbridge, Kent, also had weed-killers, as the Acme and the Invicta, together with quassia chips, &c.

GARDEN ORNAMENTS IN POTTERY WARE.

Three firms staged under this section, and their efforts furnished a very interesting feature of the show. Messrs. Donlton and Co., Ltd., Lambeth, London, S.E., had fountains, sundials, garden seats, vases, flower pots, and pedestals in terracotta and Doulton ware (gold medal). Messrs. Liberty and Co., Regent Street, London, showed that here, as well as in the manufacturing of artistic fabrics for dress, they were prominent, and their catalogue is full of beautiful illustrations, which will give the distant customers some knowledge of what they offer. Their potteryware, vases, pedestals, edging tiles, &c., &c., were admirable in all respects, and obtained a gold medal. Messrs. Pulham and Son, Newman Street, W., were also represented by sundials, balustradings for walls, also vases (tazzas), and in part of the sloping ground out of doors they had made part of a rock-garden, arranging huge blocks of sandstone in quite a natural style. They had a large silver-gilt medal.

HEATING APPARATUS.

Some interesting types of boilers were exhibited, and this department was certainly one of the best in the show, from the fact of its being a fresh feature. If this exhibition is repeated next year, it would be again satisfactory to see similar displays. The Rochford boiler shown by Messrs. Chas. P. Kinnell and Co., Ltd., 65, Southwark Street, S.E., is remarkably powerful, being formed of horizontal tubular bars, that offer a very large amount of heating surface. This firm also had other exhibits, and received the high award of a gold medal. Messrs. James Keith and Blackman Co., Ltd., 27, Farringdon Avenue, E.C., had, amongst others, the patent Challenge boiler, a very peculiar-looking, but likely enough efficient, structure, entirely built of hollow bars to offer a wide extent of heating surface. The boiler is formed in squares, one upon the top of the other to the extent of eight tiers, and the water is continuous throughout. The chimney is moveable in any direction to suit the direction

of the wind probably, and the whole erection is made without the need of any brickwork (silver medal).

Messrs. Hartley and Sugden, Ltd., Atlas Boiler Works, Halifax, had the famous Chatsworth and other saddle boilers. They have a large number of types to choose from (silver medal). Messrs. White, Child, and Beney, Ltd., 62, Queen Street, Cheapside, E.C., had fine Strebel counter-current sectional boilers for low-pressure hot water and low-pressure steam heating. The boilers are of cast iron, on the down-draught principle, and require no brickwork (large silver medal). Messrs. Messenger & Co., Ltd., Loughborough, and 122, Victoria Street, Westminster, S.W., had patterns of their well-known Loughborough boiler, as well as radiators, and small greenhouse boilers (large silver medal).

MACHINERY.

Messrs. Merryweather are widely known as makers of fire engines, and their address is 63, Long Acre, London. They had the following subjects, regarding which we are favoured with some particulars:—

Merryweathers' "Novelty" spraying and garden engine, driven by high speed petrol motor, with gunmetal rotary pump, coupled direct to the motor shaft, the whole machinery mounted on a 30 gallon tank carried on two light iron wheels, and provided with handles. Petrol supply is carried for ten to twelve hours working, and the ignition is by battery and coil. The pump can draw from the tank, in which insecticide can be mixed for spraying, or suction pipe can be employed to draw from a pond, stream, or other supply. A pressure of 60lb per square inch can be maintained, the delivery being sufficient to keep five or six sprays going at once. The motor can be started instantly, and the apparatus will do the work of several men at less cost, while being lighter in weight and more portable than steam apparatus.

New Merryweathers' patent (No. 8,581) steam hop washing and fruit spraying plant, consisting of a light steam boiler and pump, mounted on a four wheel iron carriage provided with drag handle. The pump will work six or eight sprays at once, supplying them through portable piping fitted with flexible joints and quick hitching connections. These pipes can be laid down rapidly in any garden or orchard, and valves with hose couplings being provided, the small hoses and sprays can be connected as required. In wet weather when horse washers are practically useless, this system can be used effectively, while the cost of working is much less than with hand apparatus. It is already in use at a number of gardens and orchards in Kent.

Another of Merryweathers' novelties in pumping plant for farm and estate work is their new patent "Waterspout" portable centrifugal pump, driven by a petrol motor. The whole machine is mounted on a four wheel iron carriage, with draghandle, and can be started instantly. The motor is a double cylinder water, cooled and provided with electric ignition. It drives the pump at high speed direct, and the capacity of the latter is about 18,000 gallons per hour to a height of 25ft. The weight and size of the apparatus is only a fraction of that of steam worked plant, to do the same work, and its portability renders it most convenient for drainage, irrigation, and sewage pumping work.

Still another new adaptation of the petrol motor, is the Merryweather high speed motor and "Hatfield" pump shown. This is a portable apparatus, being mounted on a light iron carriage, and can be moved about by one man. The pump, which has three barrels, and is driven by a single cylinder water cooled petrol motor, will deliver 3,000 gallons per hour for irrigation, watering crops, water supply to house and stables, &c. As it can be started instantly by simply turning a handle, it is also valuable as a fire engine.

The Merryweather "Valiant" engine is already well known, being in use by many landowners for estate water supply, temporary pumping, and fire extinction. The one shown will deliver 5,000 to 6,000 gallons per hour, can raise steam in from six to eight minutes, and the weight of the engine and boiler complete is only 6½ cwt. It has a detachable iron carriage, enabling it to be wheeled about by a couple of lads, or, by means of poles passed through rings provided on the top of the boiler, half a dozen men can carry it easily.

An interesting exhibit is a hydraulic ram for water supply work on farms and country estates, with, beside it, model of this ingenious water raiser with a glass air vessel, so that the action of the apparatus can be seen and understood. Many Merryweather rams are now in use, and work practically unattended for days together. They can be fixed anywhere where there is a stream giving a fall of 2ft or more, and can be arranged to force part of the water working them to a reservoir at an elevation, or to work with dirty water and pump clean from some other source.

A working model of a Merryweather windmill driving a water supply pump is shown on the lawn, and it is stated a number of these are now in use in this country on private estates and farms. Of course, where windmills are used, work is intermittent, and therefore large storage capacity has to be provided; but, the cost for power being practically nil, this question does not present serious difficulties.

The Merryweather "India" pump is well known on the railways of our Great Eastern dependency, being extensively used for water supply to stations and depôts. It is largely used on estates in this country, and on plantations abroad for irrigation and water supply work. The frame is practically unbreakable, being entirely of wrought iron, and the pumps are of solid gunmetal, so that salt or acid liquids may be pumped without injuring the barrels or valves. A great advantage of this pump is that, when the depth of water is beyond its lifting power, the barrels can be lowered, as down a well, and the handles worked from surface level. Two or four men can work the pump, and the delivery is from 1,500 to 2,400 gallons per hour, according to depth of lift and height to which the water is to be forced.

Many country houses have poor water supplies, and in many cases the pressure is insufficient. To improve this pressure for watering purposes and for fire extinction, the Merryweather angmentor shown is well adapted. It can be attached to any water valve, and, by turning a handle, one person can enable a powerful jet or spray to be thrown where previously the water would only reach the nozzle. One of these apparatus in portable form, driven by an electric motor, is shown, and is a distinct novelty in pumping appliances.

In smaller watering appliances, the Merryweather firm keep well ahead, a representative selection being exhibited, including hand power pumps, hose pipes of all kinds, nozzles, jets, sprays, garden hydrants, standposts, lawn watering plant, &c. The garden hoses are of the high class quality, which has always been associated with the firm, and, though more costly in the first instance than the garden hose of commerce, are economical in the long run, owing to the higher price being more than repaid the purchaser in the longevity of the hose. A novelty is the cotton covered "Comtonite" hose, which is made of grey rubber, and has a white cotton cover woven on. This hose stands high pressure, and is very cleanly and pleasant to use.

LAWN MOWERS.

Messrs. Ransome, Sims, and Jefferies, Ltd., Orwell Works, Ipswich, displayed their improved motor lawn mowers at work on the lawns, also an assortment of mowers for horse and hand power (gold medal). Messrs. Shanks and Son, Ltd., Dens Iron Works, Arbroath, N.B., and Bush Lane House, Cannon Street, E.C., had their 10in and 14in Caledonia, their Britannia and Britisher, their pony delivery lawn mower, and others (large silver medal). Messrs. Thos. Green and Son, Ltd., New Surrey Works, Southwark Street, S.E., sent eighteen different patterns, so that all needs and purposes can surely be supplied. They received a large silver-gilt medal.

GREENHOUSES AND SUMMERHOUSES.

The section devoted to greenhouse structures and arbours was well filled—at least, the exhibits seemed to cover a good space of ground. Various makes and designs, both in frames and greenhouses, were on view, and a curvilinear structure showing the wire-tension method of glazing was staged by Messrs. Skinner, Board, and Co., Bristol. While this allows the maximum of light to pass, it is very conducive to draughts, the panes of glass being by no means close fitting upon one another. Mr. J. W. Riley, Herne Hill, S.E., showed a revolving summerhouse—one which ran on a circular rail by means of wheels. Mr. W. Duncan Tucker, Lawrence Road, South Tottenham, N., had a greenhouse with lath roller blinds attached, and these were held above the top ventilator by means of a hooped iron rod at either side. Others who staged greenhouses were Mr. J. Unite, 291, Edgware Road, London (tents and garden furniture); Pearce and Co., 644, Holloway Road, N.; and James Crispin and Sons, Nelson Street, Bristol, who each obtained silver medals.

SUNDRIES.

Mr. J. Pinches, 3, Crown Buildings, Camberwell, sent samples of his well known "Acme" labels. The Gishurst Compound was exhibited in sample packets by Price's Patent Candle Co., Ltd., Belmont Works, Battersea.

Mr. J. Williams, 4A, Oxford Road, Ealing, had a pretty exhibit of his "Rural Decorations"; and Mr. A. Hemsley, of Lewisham, S.E., on behalf of Mr. A. P. Bruce, Chorlton, Manchester, staged the new Adjustable Displayers and Flowerholders, which are so very convenient, easy, light, economical, and helpful.

The Four Oaks Nursery and Garden Sundries Co., Sutton Coldfield, Birmingham, staged their undentable syringe (which they guarantee for three years), their spraying, angle joint, and self-supplying syringes, together with garden engines, wheelbarrows, zinc tubs, wire brushes, lawn-sprinklers, standard tree-pruners, the aerator, and other useful implements (silver medal).

Messrs. Champion and Co., 115, City Road, London, contributed a display of their elegant and very substantial tubs for shrubs, palms, and large plants (silver medal).

Messrs. Corry and Co., Ltd., Shad Thames, S.E., sent tobacco fumigators nicotine soap, Ewing's mildew composition, Scott's wasp destroyer, Elliott's "Summer Cloud" shading, and other sundries (silver medal).

Mr. H. Pattison, 1, Farm Avenue, Streatham, S.W., was forward with his patent horse boots, and he has now a patent turf renovator (bronze medal).

Messrs. James T. Anderson and Sons, Ltd., 135 and 137, Commercial Street, London, E., had raffia and mats, canes, sticks, wood, knives, shading, garden lines, &c. (silver medal).

Machinery for spraying, white and lime washing, together with pumps, appliances, garden hose, and hose fittings, were contributed by Messrs. Wallach Bros., 57, Gracechurch Street, E.C.

Educational.

President, Sir William J. Collins, M.D., D.L., L.C.C.

The following is the programme of the conference that was held on Tuesday, June 7th:—10 a.m., Allotment Gardens and Working Men, by F. W. Verney, L.C.C.; 11 a.m., Address on "Nature Study and its Cognate Educational Subjects," by Sir George W. Kekewich, K.C.B., D.C.L., president of the School Nature Study Union; followed by various authorities.

(1) A paper on "Horticultural Teaching among Adults," by Mr. J. Weathers, F.R.H.S., instructor in horticulture, Middlesex County Council.

(2) A paper on "School Gardens and Horticultural Teaching in Schools," by Mr. R. Caesar, head master, Hale Council Schools, Farnham.

(3) A paper on "School Nature Study," by Miss Violet James (Kindergartner), Heidelberg College, Ealing.

Other conferences were arranged and held. We may refer to these in next issue.

THE EXHIBITS.

This part of the exhibition was chiefly confined to the corridor, though the conservatory contained a few exhibits. Mr. R. Hedger Wallace had charge of the exhibits, and set them out advantageously. Displays to illustrate the methods of nature study came from the far north of Scotland, as well as from divers parts of England, and London, of course, was particularly strong. We would name the exhibits seriatim, though some will be unavoidably omitted, since our report was prepared before the entire section was completed. Thus:—

Messrs. Cassell and Co., Ltd., La Belle Sauvage, Ludgate Hill, had rural handbooks and coloured drawings. Messrs. Macmillan and Co., London, also had books on gardening and on rural subjects, with drawings. Messrs. Routledge, Ludgate Square, had these, and plans of cottage gardens, &c.

Schools were very numerous represented, as the Croft School, Betley, with phenological observations tabulated; the L.C.C. Boy's School, Rutherford Road, Catford, S.E., with fine photos and drawings; Council School, Hythe, Southampton, which had insects and specimens of children's notes on natural phenomena.

Sompting School, Worthing, Sussex, had beautiful photos showing the children at work in the garden, with coloured drawings by the pupils. Stoke Bruerne School, Northampton, staged a collection of grasses, rushes, and wild flowers, dried and neatly mounted, and well-bound books, making a really admirable collection.

The Horticultural College, Swanley, had a set of twigs from different trees and shrubs. The American School College Text-book Agency, London, had books; and the Remington Typewriter Co. had models of the manufactures and a desk well-appointed for the needs of business men.

The Nicolson Institute, Stornoway, Lewis, N.B., presented a beautiful natural history book—i.e., a book containing notes and specimens to illustrate the nature-study work done in school. The Church of Scotland Training College, Aberdeen, had also a small but interesting exhibit.

Mr. Henry Irving, Horley, Surrey, contributed magnificent photographs of deciduous forest trees, two of each, to show the winter and summer condition of the subjects. These were splendidly executed, and measured 18in by 15in apiece.

Oak and Plane tree galls were exhibited by Miss L. Arundel, Froebel Educational Institute, Telgarth Road, West Kensington, together with a paper by her on the subject of galls.

James Allen's Girls' School, Dulwich, S.E., sent an exhibit to demonstrate botanical teaching, such as geotropism of roots, transpiration, respiration, an auxometer to note the rate of growth in plants, and so on.

University College, Gower Street, London, sent a large geological map of East Norfolk and North-east Suffolk, with numerous other smaller ones, the most interesting of which was that illustrating the closing up of Whitsley Mere by plants between the years 1838 and 1884.

The Camden School for Girls had models of Apples, Pears, and other fruits done in putty by the pupils. Stroud Green and Hornsey High School had a collection of flowers dried and mounted. The Queenswood School, Clapham Park, S.W., had weather charts, nature notes, and drawings by scholars. Mrs. Hutton's School, Queen's Gate, also had drawings, maps, and notes. Bailey's Lane L.C.C. School sent a plan of their school garden and photographs. The Beethoven Street Higher Grade School, L.C.C., Chelsea Division, were also represented with the following:—Bellenden Road Higher Grade School, Peckham; Copland Street Council School, Grove Road, St. John's Wood,

Earlsfield Road, Clyde Street Infants' School, Deptford, S.E., Invicta Road School, Blackheath, S.E., and Council School, Waterloo Street, Hammersmith.

Colonial.

This division deserves more space than we can devote to it. Samples of fruits, both fresh and as models, were staged by the Acting Agent-General for Victoria, 142, Queen Victoria Street, E.C.; the Agent-General for South Australia, 28, Bishopsgate St. Within, E.C.; the West India Committee, 15, Seething Lane, E.C.; the Commercial Agency for the Government of New South Wales, 49, Eastcheap, E.C.; and the Agent-General for the Cape of Good Hope, 100, Victoria Street, S.W. Each of these displayed quantities of fruits, as stated, also bottled essential oils, canned meat, tobacco, samples of cereals, wines, and pictures of scenes or plants in their respective colonies.

Our report is necessarily brief, but it described each of the main features of this exhibition. Undoubtedly the officials of

and Modesty; 9, Mr. Wood, with Modesty; 10, Mr. Eyre, with Modesty.

Feathered bybloemens.—1 and 2, Mr. Eyre, with Bessie and Stockport; 3, Mr. Buckley, with Stockport; 4 and 5, Mr. Midgley, with Stockport; 6, Mr. Buckley, with Stockport; 7, Mr. Bentley, with Stockport; 8 and 9, Mr. Needham, with Stockport and Adonis; 10, Mr. Bentley, with Adonis.

Flamed bizarres.—1, Mr. Bentley, with Lord Stanley; 2, Mr. Needham, with Dr. Hardy; 3, Mr. Needham, with Sir J. Paxton; 4, Mr. Moorhouse, with Sir J. Paxton; 5, Mr. Hall, with S. Barlow; 6, Mr. Eyre, with Lord Stanley; 7, Mr. Bentley, with S. Barlow; 8, Mr. Hall, with Orpheus; 9, Mr. Eyre, with Sir J. Paxton; 10, Mr. Moorhouse, with Sir J. Paxton.

Flamed Roses.—1, Mr. Bentley, with Aglaia; 2, Mr. Moorhouse, with Mabel; 3, Mr. Eyre, with Mabel; 4, Mr. Hall, with Mabel; 5, Mr. Bentley, with Mabel; 6, Mr. Moorhouse, with Mabel; 7, Mr. Needham, with Tryphena; 8, Mr. Eyre, with Mabel.

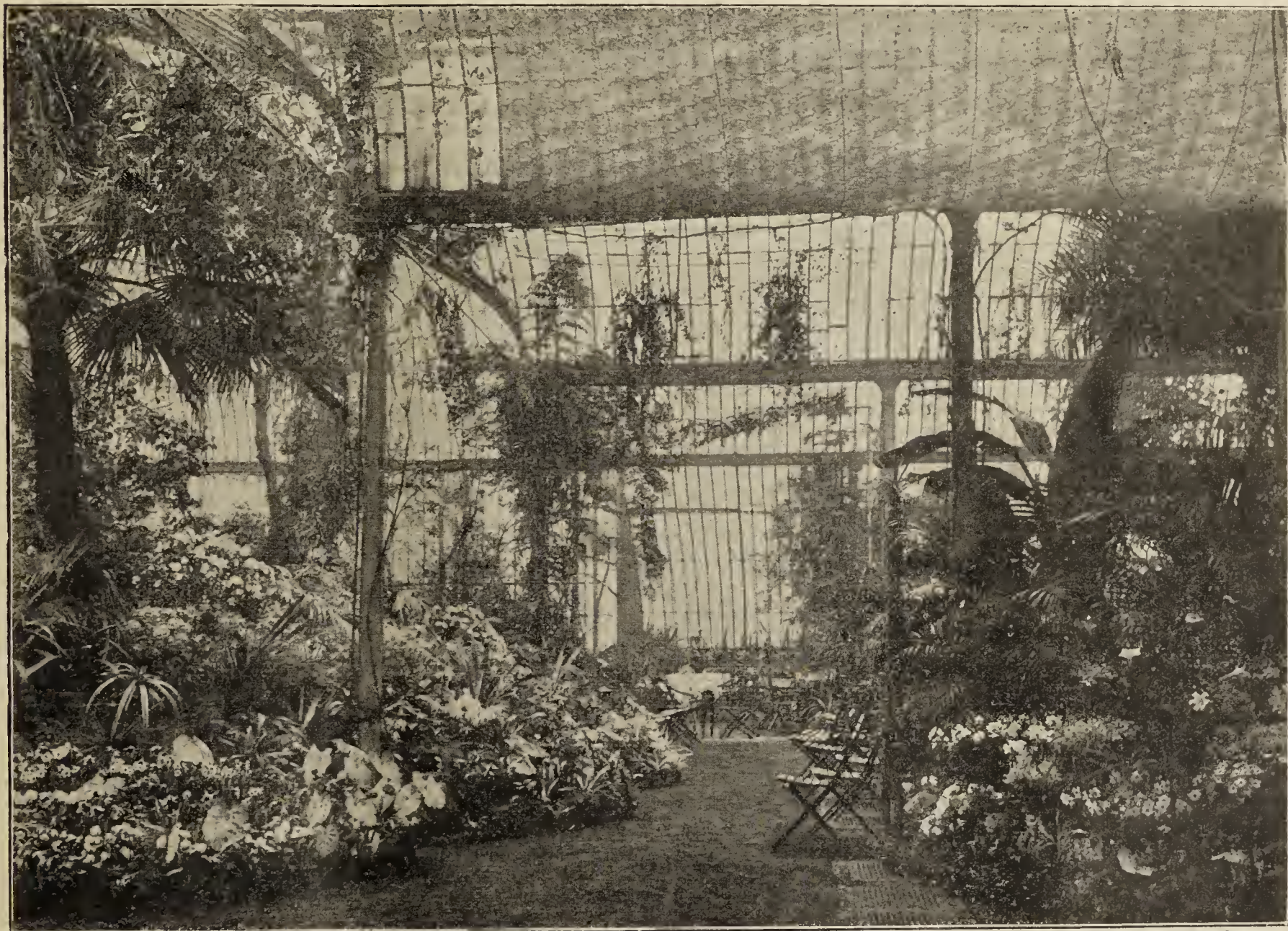


Photo by

J. Gregory.

Interior View of the Conservatory, Royal Botanic Society's Garden.

the society have made a great effort to gain wider recognition and financial success, and it is to be hoped they succeeded. The glass houses in the gardens are being renewed, and one may predict that the garden will be still more useful and interesting in the near future.

Royal National Tulip, Northern Section.

(Concluded from page 481.)

Class 8, single blooms, feathered bizarres.—1, Mr. Hall, with J. Moody; 2, Mr. Buckley, with Lord F. Cavendish; 3 and 4, Mr. Needham, with Red Eagle and G. Scholes; 5, Mr. Moorhouse, with Masterpiece; 6, Mr. Eyre, with Masterpiece; 7, Mr. Bentley, with Masterpiece; 8, Mr. Moorhouse, with Lord F. Cavendish; 9, Mr. Eyre, with W. Wilson; 10, Mr. Hall, with G. Scholes.

Feathered roses.—1, Mr. Needham, with Andromeda; 2, Mr. Bentley, with Andromeda; 3, Mr. Wood, with Modesty; 4, Mr. Buckley, with Modesty; 5, Mr. Bentley, with Mabel; 6, Mr. Moorhouse, with Modesty; 7 and 8, Mr. Hall, with Sarah Ann

Flamed bybloemens.—1, Mr. Needham, with Talisman; 2, Mr. Eyre, with Talisman; 3, Mr. Needham, with Adonis; 4, Mr. Hall, with Talisman; 5, Mr. Moorhouse, with Talisman; 6, Mr. Buckley, with Stockport; 8, Mr. Eyre, with Duchess of Sutherland; 9, Mr. Bentley, with Talisman; 10, Mr. Hall, with Talisman.

The best feathered flower, Mr. Needham, with Stockport; the best flamed flower, Mr. Needham, with Mrs. John Gibbons.

Class 10, six breeder Tulips.—1, Mr. Needham, with A. Lloyd, Sir Joseph Paxton, Mrs. Barlow, Rose Hill, Nimbus, and Bridesmaid; 2, Mr. Eyre, with Goldfinder, A. Lloyd, Leech's 2, Surpass le Grand, Mrs. Barlow, Industry; 3, Mr. Moorhouse, with Sulphur, Sir J. Paxton, Mrs. Barlow, A. McGregor, Adonis, and Talisman; 4, Mr. Wood, with A. Lloyd, W. Wilson, Mabel, A. McGregor, Boardman's 1, and Martin's 117; 5, Mr. Bentley, with Lord Roberts, Excelsior, Lady Grosvenor, Rose Hill, Adonis, and E. Pegg; 6, Mr. Hall, with Sulphur, Seedling, Rose Hill, Mrs. Barlow, E. Pegg, W. Parkinson.

Class 11, three breeder Tulips.—1, Mr. Needham, with Dr. Hardy, Ashmole's 114, A. McGregor; 2, Mr. Bentley, with A.

Lloyd, Mrs. Barlow, and Thurstan's 216; 3, Mr. Eyre, with Goldfinder, Industry, and Leech's 2; 4, Mr. Moorhouse, with W. Wilson, Rose Hill, and Talisman; 5, Mr. Wood, with A. Lloyd, Mabel, and Martin's 117; 6, Mr. Buckley, with W. Wilson, Modesty, Agnes.

Class 12, single blooms, bizarre breeders.—1, Mr. Needham, with A. Lloyd; 2, Mr. Moorhouse, with Goldfinder; 3, Mr. Eyre, with A. Lloyd; 4, Mr. Moorhouse, with Sulphur; 5, Mr. Needham, with Sir J. Paxton; 6, Mr. Bentley, with Sir J. Paxton; 7, Mr. Eyre, with Sulphur; 8, Mr. Bentley, with Goldfinder.

Rose breeders.—1 and 2, Mr. Eyre, with Mrs. Barlow and Rose Hill; 3, Mr. Needham, with Rose Hill; 4, Mr. Moorhouse, with A. McGregor; 5, Mr. Needham, with Lloyd's Seedling; 6, Mr. Moorhouse, with A. McGregor; 7, Mr. Wood, with Mabel; 8, Mr. Buckley, with Mabel.

Bybløemen breeders.—1 and 2, Mr. Needham, with Pegg's Seedling and Glory of Stakehill; 3, Mr. Eyre, with Leech's 2; 4, Mr. Buckley, with Agnes; 5, Mr. Bentley, with Parker's King; 6, Mr. Eyre, with Alice Grey; 7, Mr. Buckley, with Agnes; 8, Mr. Bentley, with Martin's 117.

Best breeder in the show, Mr. Needham, with Alfred Lloyd.

Scottish Horticultural Association.

The monthly meeting was held in Dowell's Rooms on the evening of Tuesday, the 7th inst., Mr. McHattie, president, in the chair. There was a good attendance. A number of new members were elected, and several gentlemen proposed for election. Mr. Grieve, the well known horticulturist and popular nurseryman, of Red Braes, Edinburgh, gave a lecture entitled "Florists," and for fully half an hour kept his audience intensely interested by his rapid and comprehensive summary of florists of past and present times who have made a name and fame as raisers and cultivators of florists' flowers, and others noted in general horticulture. Beginning with James Justice, an ardent horticulturist of the eighteenth century, he noticed such men as Cunningham (Comely Bank), Downie (Edinburgh), the elder and younger McNab, Turnbull (of Erica fame), Goodall, Young, David and William Thomson, Gorrie, Guthrie, and Webster (as fruit growers), Dobbie (Rothsay), McKenzie (Warriston Nurseries), Laing (of Dysart), Lindsay, Munro, and many others who have worked in Scotland in the cause of horticulture. An interesting discussion followed, taken part in by Mr. McKenzie, Mr. Todd, Mr. Comfort, and the president. A very warm vote of thanks was awarded to Mr. Grieve.

A very attractive table of exhibits was presented by a number of members. Messrs. Cocker and Sons, Aberdeen, exhibited a beautiful collection of twenty-two varieties of Trollius, mostly seedlings of much quality. First class certificates were awarded to Mrs. Hadden and to seedlings Nos. 34 and 25, also to a choice yellow bedding Viola named Cocker's Seedling. Mr. McKenzie, Trinity Grove, sent a very beautiful example of Odontoglossum citrosum, to which a cultural certificate was awarded. Mr. McKenzie had also a beautiful branch of Bougainvillea Sanderi and a seedling Passiflora. Mr. Johnstone, Hay Lodge, exhibited cut blooms of an attractive pink Rhododendron. Mr. Grieve, Red Braes, contributed a very nice collection of hardy border flowers. Cut Rhododendrons were sent by Mr. Watt, Queen Street Gardens; a stem of Tritoma Burchelli was sent by Mr. Brown, Silverknowe. Votes of thanks were awarded to the exhibitors.

The Metropolitan Public Gardens Association.

OPEN SPACES.—At the monthly meeting of the Metropolitan Public Gardens Association, held on Wednesday at 83, Lancaster Gate, W., the Earl of Meath, chairman, presiding, it was agreed that the association should undertake the laying out of St. Nicholas's Churchyard, Deptford, subject to its maintenance being guaranteed, that it should renovate St. Mary's, Whitechapel, Churchyard, and should renew its offer to assist in the laying out of the Norfolk Square area, Islington. It was stated that the work at St. Botolph's Billingsgate, having been completed, the ground would shortly be re-opened, and that the Mayor of Bermondsey, on behalf of the Borough Council, had formally taken over from the donor, the drinking fountain which the association, through the generosity of Mr. Passmore Edwards, had erected in Rotherhithe Street.

Progress was reported with the schemes for the transfer of All Saints, Poplar, Churchyard to the Borough Council as a public garden, and for the extension of Hampstead Heath. A letter was read accepting seats for a site near St. Mary Abbott's Church, and an application was granted for seats for Norwood Green, Middlesex. It was decided to oppose the proposal to build on an island opposite Kew Gardens, in reference to which an application had been made to the Thames Conservancy.

A proposal was discussed that the association should encourage the creation of window gardens, and reference was made to the initiation of such work in Spitalfields. The question was adjourned for further information. Suggestions were made as to the further laying out of St. John at Hackney and Old Chelsea Churchyards, and other sites.



Fruit Forcing.

VINES: SECOND EARLY HOUSE.—Vines started at the new year have the Grapes ripening where they have been brought forward gently, but when grown rapidly the crop will be ripe. Maintain a circulation of warm, rather dry, air constantly, increasing the ventilation early. Keep the floor damped on hot days, allowing the temperature to fall to 60deg at night when cold, or 65deg when warm, with sufficient heat in the pipes to prevent moisture condensing on the berries. This is necessary as a safeguard against "spot." If there is likely to be any want of finish allow the Vines time, by giving as long rest at night as possible. Moderate moisture, even if the Grapes are ripe, is essential to the health of the foliage, hence damping the floors and stages must be resorted to occasionally. Allow a moderate extension of the laterals, to encourage root action, but keep gross laterals in check, so as to cause an equal distribution of the sap. When the Grapes are ripe a minimum temperature of 60deg will be sufficient.

EARLY MUSCAT HOUSES.—The fruit ripening will need a drier condition of the atmosphere, but avoid great aridity, as the foliage will fall a prey to red spider. Do not allow any deficiency of moisture in the borders, for Muscats are gross feeders. The supply of water at the roots will in some measure compensate for the drier condition of the atmosphere. Provide a circulation of air constantly, preventing the moisture condensing on the berries by sufficient warmth in the pipes to insure a changing atmosphere. Lateral extension is the best safeguard against shanking at this stage, along with a steady temperature. Keep the night temperature at 65deg to 70deg, 80deg to 85deg by day with a little sun, and 90deg to 95deg with it in full force. Ventilate early, and regulate by the sun's increase, and so with its decline. The old leaves of Muscats are liable to be scorched under powerful sun after a period of dull weather. In very bright weather draw a single thickness of tanned netting over the roof lights, which, without impeding too much light, will prevent the scorching.

GRAPES STONING.—During the process the Vines should not be hurried, but have a regular temperature of about 65deg at night, 70deg to 75deg by day from artificial heat if the Grapes are wanted by a given time. Admit air in good time, always a little at 70deg, and dissipate moisture before the sun acts powerfully upon the foliage. Allow a moderate lateral extension, but avoid overcropping, and supply a top-dressing (washing in) or liquid manure.

PEACHES AND NECTARINES: EARLY HOUSES.—When the trees of the very early varieties, such as Alexander, Waterloo, Duchess of Cornwall, and Early Rivers and Early Louise Peaches, Advance, Cardinal, and Early Rivers Nectarines, have been cleared of their crops, the shoots on which the fruits have been borne, if not required for the extension of the trees, should be cut away to the successional growths from their base, which will allow light and air free access to the foliage. Syringe forcibly to cleanse the trees of red spider, and if this and scale continue troublesome, the prompt application of an insecticide will be necessary to eradicate the pests. It is highly important that the foliage be kept clean and healthy, and to prevent over-maturity of the bud or premature ripening of the wood, it is necessary to keep the atmosphere of the house cool by ventilating to the fullest extent after the fruit is gathered, excepting when the weather be unusually cold and the wood somewhat sappy. Keep the borders moist, and in showery weather remove the roof lights. Stop the laterals, especially the gross ones, but avoid giving a check by a great reduction of foliage at one time as this has a tendency to hasten the ripening of the growths, and when such is the case, the trees will be swelling their buds, or casting them through over-development when they should be resting.

TREES OF HALE'S EARLY, Rivers' Early York, Dr. Hogg, A. Bec, Early Alfred, and other second early Peaches, with Lord Napier, Rivers' Orange, and other second early Nectarines, closely follow the very early varieties, and are now ripening or have the fruits ripe, the house not being started later than the new year. These varieties are succeeded by Stirling Castle, Royal George, Dymond, and Crimson Galande Nectarines. The fruits are now ripening and must not be syringed unless the trees are infested with red spider. When water hangs on the fruits for any length of time after they commence ripening the skin is liable to crack. The trees must not be allowed to suffer by want of water at the roots, but any

excess of moisture at this stage has a tendency to cause splitting at the stone. Every care should be taken to secure good finish.

HOUSES STARTED IN JANUARY.—Where the trees have been forced for several years consecutively they will have the fruit in the condition described in the preceding paragraph, but where they are forced for the first time, or have progressed gently, the finest fruits will now be ripening. The leaves should be turned aside, and the fruits raised on laths placed across the trellis, and secured with the apexes to the light. This, however, ought to have been effected some time ago, and the fruit will, where that has been done, now have attained a good colour. If the weather prove dull and cold gentle fire heat will be necessary to secure a circulation of air constantly, the temperature being maintained at 60deg to 65deg at night and 70deg to 75deg by day. Cease syringing as soon as the fruit begins to ripen or soften, and take care to have the foliage free from red spider before the syringing ceases, as the pest otherwise will increase so rapidly whilst the fruit is ripening as to seriously jeopardise future crops. See that there is no deficiency of moisture in the border, and, if necessary, give a thorough supply of water, mulching lightly with rather short, lumpy manure, such as that of a spent Mushroom bed, or partially decayed, always sweetened, stable litter with the straw shook out.

SUCCESSION HOUSES.—Hurrying the trees during the stoning process is sometimes fatal to the fruit, therefore give time for this most exhausting essential. Allow a free circulation of air, ventilating early in the morning, and close in the afternoon, with abundance of atmospheric moisture, so as to raise the temperature to 80deg or 85deg, and ventilate a little afterwards for the night, the temperature being allowed to fall to between 60deg and 65deg. This must only be practised after the stoning is completed, as a close atmosphere has a tendency to promote growth, and is not favourable to that process, therefore avoid undue excitement when the trees are in that condition. When the fruits have stoned remove all superfluous fruits, and turn the others with their apexes to the light to insure colour and even ripening from the apex. Allow a rather free extension of the laterals as an encouragement of root action, but be careful not to crowd the principal foliage, and keep insects in check by syringing twice a day. Give thorough supplies of water through a light mulching of lumpy manure, and supply weakly trees with liquid nourishment. Vigorous trees will not need more than a surface mulching, as high feeding will only cause grossness, which must be avoided.—G. A., St. Albans, Herts.

The Flower Garden.

CARPET BEDDING.—The weather is now sufficiently warm and settled to render it safe to place out even the tenderest of the ornamental leaved plants employed in constructing a formal design. Some of the hardier plants will have been established ere this in their positions, but it is not too late to plant them now, these consisting of *Echeverias*, *Pyrethrum*, *Herniaria glabra*, *Antennaria sempervivens*, while those remaining to place out are *Alternantheras*, *Iresines*, *Mesembryanthemum cordifolium variegatum* and *Coleus Verschaffelti*. Plant strong plants closely together, and they will soon become established, and produce an effect at once. After insertion the beds must never suffer for want of moisture.

WINDOW BOXES.—The furnishing of window boxes must be effected with plants in bloom, or just about commencing. Drain the receptacles with a few crocks and a good proportion of broken-up turves from which the loose soil has been shaken. The compost should be good and substantial, so that the vigour of growth and blooming propensities of the plants may be maintained. The best plants for the purpose are zonal *Geraniums*, *Calceolarias*, *Marguerites*, *Petunias*, *Ivy-leaved Pelargoniums*, *Lobelias*, *Nasturtiums*. Intermix them as effectively as possible, using the low-growing and trailing plants to the front. The success of window-box culture depends on the regular attention accorded the requirements of the plants.

GENERAL NOTES ON BEDDING.—All the various kinds of plants used for furnishing beds should be disposed in their places as soon as possible, keeping a reserve for possible blanks. See that the whole of the plants are moist at the roots when inserting. Plant fairly closely, but not crowding. Watering should be done late in the afternoon or evening. When the soil becomes caked through rain or watering, break the surface. This will prevent rapid evaporation and assist growth. Weeds springing up among the plants should be quickly pulled out or hoed down. Attend early to those requiring regulating and pegging down. Annuals in beds should be thinned out as they touch one another.

ROSES.—Shoots too freely furnished with buds should have some of them removed, retaining only a limited number when growing for exhibition. Insects on the growths will be inimical to the welfare of the plants. Vigorous syringing will dislodge

aphis, though if very numerous a solution of insecticide may be prepared and used. Established plants about to bloom may require more nourishment than the soil affords, but if the soil moisture is maintained the plants will not suffer, though the quality and size of the blooms may be improved by feeding with any of the artificial fertilisers, using 1oz to the gallon of water.—E. D. S., Gravesend.

The Kitchen Garden.

PEAS.—The last sowing of Peas should now be made. An early variety of a dwarf type should be used for this late sowing, and I know of no better variety than *Chelsea Gem*. If a sheltered border can be spared, so much the better, especially if it has a full south exposure. If the soil is at all dry, the trenches should receive a thorough soaking.

CELERY.—The main crop of this should now be set out. The plants should be carefully lifted by a handfork, with good balls of soil attached to the roots. See that the soil is in a moist state, having been watered some hours previous to planting. Celery should not be allowed to want for water. This is one of the main causes of bolting.

MUSHROOM BEDS OUTSIDE.—Beds may now be made outside in a partially shaded place. The manure should be carefully prepared by turning frequently. It may be turned in a long ridge on the ground where the bed is to be made. The manure should be carefully shaken to pieces as the turning proceeds. The beds may be 3ft deep and 3ft wide at the base, gradually tapering to the top, and should be beaten very firmly. When the heat recedes from 90deg the spawn should be inserted, and the bed covered with straw, in such a way as to throw off heavy storms of rain.

ASPARAGUS BEDS.—These should receive a good dressing of an approved fertiliser. This should be done after all the heads have been gathered. If lightly forked in, so much the better, but this must be done carefully. This dressing will greatly benefit summer growth, and strengthen the plants for next year's crop of heads. Cutting should cease towards the end of the month, at the latest.

KIDNEY BEANS.—Another sowing of these should now be made for the production of a late supply. It will be found an excellent plan to nip the points out of the plants as soon as they show the first truss of flower, and to keep these pinched closely instead of allowing them to climb up the sticks. They will prove far more productive treated in this way as a late crop.

SALADS.—More seeds of Lettuce, Endive, Radish, and such-like salading should be sown to keep up a supply. This should be sown on a north or shady cool border. In such a place it will germinate far more satisfactorily, and the young plants will grow more rapidly in hot weather, and will not bolt so quickly as would be the case in the sun.

RIDGE CUCUMBERS.—These may now be planted out on a little manure, or an old, spent hotbed will be an admirable place for them. These will require an abundance of water to keep them growing in warm weather. The growths should be regulated in order to keep them from crossing each other when they first start into growth. Syringe the plants on warm evenings.—A. T., Cirencester.

Meteorological Observations at Wisley, Surrey.

Taken in the Royal Horticultural Society's Gardens—height above sea level, 150 feet.

Date.	Temperature of the Air.				Temperature on Grass.	Temperature of the Soil. At 9 A.M.			Rain.	Wind.		Sunshine.
1904.	At 9 A.M.		Day.	Night		At 1-ft. deep	At 2-ft. deep	At 4-ft. deep		Direction.	Total velocity for the 24 hours ending 9 a.m.	
May and June.	Dry Bulb.	Wet Bulb.	Highest	Lowest	deg.				deg.				deg.	Ins.	Miles.	h. m.
Sun. 29	63	58	70	50	47	58	60	53	—	N.	124	7 34
Mor. 30	55	55	67	53	54	60	58	53	0.08	E.	179	3 14
Tues. 31	58	56	60	55	50	59	58	54	0.26	S.W.	85	—
Wed. 1	54	51	63	47	39	57	57	54	0.01	W.	140	1 34
Thurs 2	56	50	57	49	48	57	57	54	—	N.	139	0 29
Fri. 3	53	50	63	49	49	57	56	54	—	E.	113	4 57
Sat. 4	54	52	67	48	33	56	56	54	—	W.	178	11 18
MEANS	56	54	64	50	46	58	57	54	Total 0.35	—	137	4 9



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

DAFFODIL OR LILY BULBS (K. Johnson).—Practically a new bulb is formed each year, and the new bulb is that which flowers, or, in the case of several offsets or divisions of the parent bulb, continues the plant, the leaf growths being distinct from the flowering, and the former forms the bulb or bulbs for flowering the following year.

ROOT KNOT IN VIOLETS (W. H. P.).—What causes root-knot on Violet Lady-Hume Campbell? I used entirely new loam last autumn, put in cow manure, wood ashes, and bonemeal. The plants had some root-knot when planted, but developed rapidly during the winter. Can the loam be too poor? What is lacking in the soil, or what can I do to prevent the disease?—[We presume the trouble referred to as root-knot is what is known as root galls. These are caused by a minute worm, known as the eelworm or nematode. Their presence is not a sign of poor soil by any means; they are usually found in the very best of soils. Good authorities claim that the nematodes are not injurious to the Violet plants, unless they are numerous enough to affect every portion of the roots, a limited number of them being rather beneficial than otherwise, tending, if anything, to check a too luxuriant growth of foliage. Where it becomes necessary to eradicate them entirely from the soil, however, there is only one sure remedy, and that is sterilisation of the soil.]

DISEASED GRAPES (H. W. Kent).—The berries of the Muscat of Alexandria are affected by what is known as "spot." Lady Downe's are affected by the same disease, but it is rather different in appearance, and, as you say, attacks the berries at an earlier stage. By some cultivators the spot is believed to be caused by sudden chills, such as having the house very close and moist, and then suddenly, on some bright morning, admitting the cold air too freely and too abundantly. The moist conditions no doubt favour the spot fungus, for it has been found that this (*Gloeosporium laticolor*) is the cause of the spotting. This disease is very difficult to combat successfully. Dusting with flowers of sulphur may be practised when the berries are set, repeating at intervals of ten days. A small quantity of quicklime should be mixed with the sulphur on the second application, and the quantity of lime should be increased at each successive application, until the proportions of lime and sulphur are nearly equal, always keeping just a little more sulphur than lime. It has been found of service to thoroughly wet the rods, spurs, and canes whilst quite dormant with a solution of iron sulphate, 1lb of the sulphate to 1½ gals of water. There is no remedy. The only course to pursue is to remove diseased fruit and burn it as speedily as possible.

STOCKS FOR FRUIT TREES (Able Potts).—(1) Apples. Crab (*Pyrus malus*), or those raised from pips or seeds of the Apple of our hedgerows and copses; free, or those raised from the pips or seeds obtained from the crushed fruit used in cider-making in this country and the Apple-growing districts of Normandy. These stocks are chiefly used for standard trees. The other kind of stock used is the Paradise, of which there are three forms—the French, too dwarf and weak; the Dutch, stronger and better; and the English, superior to both, and commonly called Doucin. The broad-leaved Paradise and the Nonesuch Paradise stocks are also much approved. Paradise stocks are used for dwarf trees—bushes, pyramids, espaliers, and cordons. (2) Pears. These are worked on the stocks reared from seed either of the wild Pear (*Pyrus communis*), or of the varieties cultivated for perry, these being used for standards or large bushes. The Quince stocks are used for dwarf trees, though in some cases the Pears succeed only when double-grafted. The Angers Quince is the best for Pears. (3) Plums. As a general stock, the St. Julien, White Pear, and Mussel Plums are generally employed, the latter suiting best for standards. Damson or Bullace stocks are not trustworthy. Myrobalan Plum has been recommended as a stock for Plums, but the records of experience are lacking.

CRIMSON RAMBLER ROSE NOT GROWING SATISFACTORILY (J. T.).—This may arise from various reasons, the chief being (1) poorness of soil, not preparing the stations well before planting, and not supplying water or liquid manure in summer so as to promote a vigorous growth of shoots for flowering the following season. (2) Excessive flowering, so that the tree is exhausted, and not cutting away the old flowered growths so as to encourage strong, vigorous growths from the base so as to provide for future flowering. Poorness of soil or lack of nourishment is, however, the chief reason of the unsatisfactory growth.

TROUBLE WITH BAY TREES (A. A.).—I have twenty-four Bay trees, which I bought from an importer. I set them out the first year, and they looked well and did well, at first. I then put them into a cave to keep them from freezing; watered them only once or twice during the winter. Last summer I brought them out and repotted them. The scale was bad. After spraying, &c., they did not do well, and since then have been going back. All the leaves are turning brown; in fact, some have no leaves at all. What shall I do to save them?—[Evidently the Bay trees are suffering from being kept too long in a place that was not light enough for them. The only thing we can suggest is to stand them in a partially shady position outdoors, as soon as the weather will permit. Keep the roots only moderately moist, and syringe them every day to get rid of the scale completely and to induce a new growth, which will come all right providing the roots have suffered no injury.]

NECTARINES DROPPING (Riverdale).—The dropping is due to imperfect stoning, the reason for which is usually excessive vigour of the trees, the conditions being such as to favour growth instead of concentration of the forces in the maturation of the seeds or kernels. These, however, in your specimens are quite sound, most of the fruits containing two seeds, one large and normal, and the other small and defective. The stone in each instance has not perfected properly, and this probably may be a result of defective nutrition, possibly of phosphoric acid. Lifting the trees as soon as the leaves commence falling is, perhaps, the best method of correcting the defect, but as the trees are old, or at least one of them, it may not be advisable to lift and replant them, therefore we should, in autumn, take out a trench half the distance from the stem the trees spread on the trellis, and as deeply as the roots, cutting off all roots down to drainage. This would check the tendency to over-luxuriance, and concentrate the forces on the fruit in the following season. Apply, in autumn, 2lb of basic cinder phosphate per square yard, and point into the soil as deeply as the roots allow without disturbing them. In the spring, as soon as the buds commence swelling, supply a top-dressing of three parts superphosphate, two sulphate of potash, and one part sulphate of magnesia at the rate of 4oz of the mixture per square yard, pointing in very lightly. It would also be advisable to keep the soil on the dry rather than the wet side, so as to induce thoroughly solidified, sturdy, short-jointed growth.

MILDEW ON ROSES (J. F.).—What is the cause of mildew on Roses? The plants grow very well but for mildew. We keep the temperature at about 50deg to 60deg at night. We spray in all bright weather in the morning, then gradually open the ventilators. We try to keep the temperature between 60deg and 70deg in the daytime. Does the mildew come at night, or is it caused by the cold air coming in through the ventilators on cold, bright days? We try to get the houses well dried before night. [Mildew on Roses can be traced to several different causes. The one which generally produces it most abundantly is an uneven temperature, particularly during the night. This in conjunction with a badly drained bottom will always produce an abundant crop of it, and the querist's description of carrying the temperature at about 50deg to 60deg at night points to the cause. This is far too wide a range to keep a Rose house free of mildew. A night temperature of 54deg to 56deg should be kept for the general class of Tea Roses, and as soon as the thermometer registers 4deg or 5deg higher in the morning, the thermometer putting on air by degrees, increasing the same as the temperature rises, allowing for cold, cutting winds. Plants are like animals. They thrive best and keep more healthy with an abundance of fresh, pure air. Regarding the time mildew comes, there is no set time for it to start any more than there is for a man to get a cold and sore throat. The same conditions that will produce one will also bring the other. Let a man get a shower bath in a warm room and then expose himself to a cold current of air, and the chances are he will have something more than a mere cold to fight. The same law applies to plants in a measure. There are many ways to produce mildew on Roses besides the above, but that is the most prolific cause of the trouble. To prevent its appearance, a steady, uniform temperature at night, combined with a moderately dry, healthy atmosphere, is needed. Commence opening the ventilators early in the morning as soon as the temperature begins to rise. Syringe and water as required early in the day, but do not keep the

ventilators closed till it is done. A damp, undrained bottom to the house will always keep mildew there, ready to start into life at any opportunity.]

WATER SUPPLY (Kittie).—We shall reply next week.

DRAWING RECEIVED (Bull and Sons).—We beg to acknowledge the receipt of the drawing.

BALLIKINRAIN ANT DESTROYER (J. Pitt).—This is obtainable from Messrs. Cross and Sons, 19, Hope Street, Glasgow.

PEACH AND NECTARINE FRUITS CRACKING (Reader and W. S.).—See reply to "Riverdale." In your case, "W. S.," the cause was probably that the lower part of the border was dry, and then received a watering, causing the fruits to swell quickly and thus rupture.

PEARS AFFECTED WITH MAGGOTS (F. H. K.).—The Pears are affected by the larvæ or maggots of the Pear gall gnat (*Diplosis pyrivora* syn. *D. nigra*, and of older times *Sciara pyri*). The only remedy is to destroy the affected Pears whilst the maggots are in them. Preventive measures are:—(1) Spray the trees with tar water just before the blossom opens, this may possibly hinder the flies depositing eggs in the blossoms; (2) When the larvæ have left the fruit, which takes place about the middle of June, later in backward seasons, supply a dressing of kainit, 15 cwt. per acre, 10½ lb per rod, or 6oz per square yard, just after rain. The salt will be dissolved by the soil moisture, and the solution, coming into contact with the larvæ, destroys them. The difficulty is that of attack from infested orchards, where no repressive measures are taken, the steps not being universal; hence fruit pests cannot be banished until neglected orchards and fruit plantations are taken in hand by competent pathologists. The life history of the Pear midge, or Pear gall gnat, is given in the *Journal of Horticulture*, June 3, 1897, page 487, with illustrations of the pest and its work, by Mr. G. Abbey.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (H. R.).—*Saxifraga granulata*, a native plant; there is also a double form. (W. W.).—1, *Pentapterygium serpens*; 2, *Prunus Padus*, the Bird Cherry; 3, *Kerria japonica* fl.-pl.; 4, *Fraxinus Ornus*, the Manna Ash. (M. M.).—This was overlooked last week; the plant was a *Phaius*, but we were quite unable to identify the species. (H. A.).—The flower was an *Ornithogalum*, and your letter is interesting.

Thinning Tree and Shrubbery Plantations.

In growing plantations of trees and shrubbery one of the most important operations the thinning out of overcrowding individuals. It is well to plant thickly, for each tree and shrub helps to protect the other. Nurse trees are often introduced into plantations to serve as temporary protection until the permanent trees gain in strength. Too often, however, the trees intended to nurse the others are permitted to remain in the plantations until they have injured their nurslings by overcrowding them.

A safe rule for the planter to follow in a young plantation is: Never allow the growth of one tree to injure the growth of another. By non-observance of this rule costly mistakes have been made, and this is nowhere more apparent than in our public parks and pleasure grounds. But go where you will, whether in the streets, the public parks or the private home grounds, to a great extent, crowded and therefore damaging conditions prevail among trees and shrubbery. The opposition which the practical arboriculturist or the landscape gardener often has to contend with is the sentimental aversion expressed by well-meaning against the cutting down of trees. This feeling is born of ignorance of the requirements of good tree culture, and, so far as public parks are concerned, is responsible for much of the destruction or the bad condition of their trees.

While the thinning out of young plantations is a simple matter, that of thinning a piece of old woodland is much more difficult. The young plantation is made to conform or to give effect to a landscape, while the old woodland may be the dominating feature, or it may require carving to bring it into harmony with the landscape. Should the trees, although standing thickly together, be fairly vigorous and well formed, a judicious thinning will improve their condition by letting in air and light, thus inducing a growth of side branches. Should, however, the trees be of spindling growth from overcrowding, better results may be obtained by cutting out freely enough to allow of new planting.

While in park plantation and woodlands trees should have more room for symmetrical development than obtains in forestry operations, yet it is not necessary that each tree in a mass intended for sylvan effect should be a perfect specimen of its kind. Specimen growths should be reserved for prominent points or open spaces. The selection of material to be thinned out should be made in the summer season and marked. At this time the condition of the trees and their relation to

each other can be the more easily determined, and pleasing combinations can be arranged or retained.—J. A. PETTIGREW (in Bulletin of New England Park Superintendents.)

Covent Garden Market.—June 8th.

Average Wholesale Prices.—Fruit.

	s. d.	s. d.		s. d.	s. d.
American Limes, 400-500 in case ...	7	0 to 9	Figs, per doz. ...	3	0 to 6
Apples, Australian, in cases ...	7	0	Lemons, per case ...	8	6
„ Nova Scotia, barl. ...	14	0	Lychees, box ...	1	2
„ Tasmanian „ ...	5	0	Oranges, per case ...	8	0
Bananas, bunch ...	6	0	Peaches, A., per doz. ...	12	0
Grapes, Alicante, lb. ...	2	6	„ B., per doz. ...	3	0
„ in barrel ...	12	0	Pears, per case ...	7	0
„ Almeria, doz. ...	6	0	„ stewing, ½-sieve ...	9	0
„ Gros Colman, A., lb. ...	3	0	Pines, each ...	2	0
			Strawberries, A., lb. ...	2	0
			„ B. ...	0	9

Average Wholesale Prices.—Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Globe, doz. ...	2	6	Onions, picklers, sieve ...	3	0
Asparagus, Sprue, bundle ...	0	9	„ English, cwt. ...	7	6
„ English, bun. ...	1	6	Parsley, doz. bnchs. ...	1	6
„ foreign ...	0	6	Parsnips, per bag ...	2	0
Beans, dwarf, per lb. ...	0	9	Peas, lb. ...	0	6
Beetroots, per bushel ...	2	6	Potatoes, per ton ...	60	0
Cabbages, doz. ...	1	0	„ Frame, lb. ...	0	4½
Carrots, doz. bun. ...	2	0	„ New Teneriffe, per cwt ...	10	0
„ per bag ...	2	6	Radishes, doz. bun. ...	0	9
Cauliflower, doz. ...	0	9	Rhubarb, per doz. ...	0	9
Celery, per doz. bun. ...	8	0	Salad, small, pun., doz. ...	0	6
Cress, per doz. pun. ...	0	9	Savoy, tally ...	3	0
Cucumbers, doz. ...	2	0	Shallots, per lb. ...	0	1½
Endive, per doz. ...	1	3	Spinach, per bush. ...	3	0
Garlic, per lb. ...	0	2	Tomatoes, Canary Deeps, lb. ...	2	6
Horseradish, foreign, per bundle ...	1	3	Turnips, doz. ...	4	0
Leeks, per doz. bun. ...	1	0	„ per bag. ...	2	0
Lettuces, Cabbage, doz. ...	0	3	Watercress, per dozen bunches ...	0	4
Mushrooms, house, lb. ...	0	6			
Onions, green, doz. bun. ...	1	6			

Average Wholesale Prices.—Plants in Pots.

Most of the undermentioned plants are sold in 48 and 32-sized pots.

	s. d.	s. d.		s. d.	s. d.
Acacia Drummondii, doz. ...	12	0 to 50	Dracenas, vars., doz. ...	12	0 to 48
Adiantums, per doz. ...	4	0	Ercas, per doz. ...	6	0
Aralias, per doz. ...	4	0	Euonymus, vars., doz. ...	4	0
Arbor Vitæ, per doz. ...	9	0	Ferns in var., per doz. ...	4	0
Aspidistras, per doz. ...	18	0	Ficus elastica, doz. ...	9	0
Aucubas, per doz. ...	4	0	Lycopodiums, per doz. ...	3	0
Azaleas, each ...	1	6	Lily of the Valley, doz. ...	9	0
Begonias, per doz. ...	4	0	Marguerites, white, doz. ...	4	0
Callas, per doz. ...	6	0	Orange trees, each ...	3	6
Cinerarias, doz. ...	6	0	Palms, var., each ...	3	0
Coleuses, per doz. ...	4	0	Pteris tremula, per doz. ...	4	0
Crotons, per doz. ...	12	0	„ Winsetti „ ...	4	0
Cyperus, per doz. ...	3	0	„ major „ ...	4	0
Dielytra spectabilis, per doz. ...	12	0	Spiræas, doz. ...	6	0

Average Wholesale Prices.—Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per bun. ...	1	0 to 2	Lily of the Valley, per doz. bun. ...	2	0 to 6
Bouvardias, per bun. ...	0	4	Mimosa (Acacia) per bun. ...	0	6
Callas, per doz. ...	1	0	Marguerites, yellow, per doz. bun. ...	1	0
Carnations, per bun. ...	1	0	Orchids, various, per doz. ...	3	0
Eucharis, per doz. ...	1	6	„ Odontoglossums „ ...	2	6
Ferns—Asparagus, bun. ...	1	0	„ Cattleyas, per doz. ...	10	0
French, doz. bunches ...	0	4	Pelargoniums, zonal, doz. bun. ...	3	0
Maidenhair, doz. bun. ...	4	0	Roses, Mermet, per doz. ...	1	6
Gardenias, box of 18-24 blooms ...	4	0	„ Various, per bun. ...	0	6
Gladiolus, per doz. bun. ...	2	0	„ White „ ...	1	6
Iris, doz. bun. ...	3	0	„ Pink „ ...	1	0
Lilium longiflorum, doz. bloom. ...	1	0	Smilax, per doz. trails ...	1	0
„ lancifolium „ ...	1	6	Stocks, per doz. ...	2	0
„ auratum ...	2	6	Tulips, per bunch ...	0	6

Miscellaneous and Trade Notes.

Mr. Benj. E. Nettleton.

Mr. Benjamin E. Nettleton, late of Messrs. T. S. Ware, Ltd., Feltham, and formerly of Messrs. Wm. Paul and Son's Nursery at Waltham Cross, has purchased the business of Mr. James Ford, nurseryman, florist, and market gardener, Myrke Nursery, Datchet Road, Upton, Slough, which he entered on Saturday last. His specialities will be Roses (in the culture of which he has had a long experience), cut flowers in variety, Grapes, Peaches, Cucumbers, and Tomatoes.



The Wool Market.

One of the most cheering phases of British agriculture at present is the steady and persistent rise in the price of wool; and we have no doubt that politicians (we do not refer to statesmen) will make considerable capital out of it, as agriculture under such encouraging circumstances can have no further claims on national consideration. If wheat rises 2s. 6d. per quarter, the merchant in his office reading the newspaper murmurs: "Ah, farmers are lucky men!" In a similar way, commercial men, reading that wool has risen in price from 14s. per tod to 22s. in two years, naturally think that farmers must be making fortunes. What are the facts?

Within our own experience, we have weighed out wool at 70s. per tod. Agricultural wages were then at the same value they are now, and we could buy a good suit of clothes at about the same price we now pay for one. Farmers did not grumble at paying a good price for a suit of clothes when they were making high prices of their wool, but they object to paying the same price for the suit when the price of the raw material is so much less. One of the great cries just now is: "Oh, you may tax some things if you like, but on no account must you tax the raw material." Well, British wool may be raw material in the same sense as Argentine is, but we doubt it, for neither are natural products. Both require a certain amount of labour in their production; but the British wool has heavy local taxation to pay for, which the Argentine knows nothing about.

We are informed that wool imported into the United States has to pay duty in proportion to the position it has advanced to in the process of manufacture. The lowest rates of duty are on very dirty and greasy wool. As soon as wool assumes the air of the manufactured article, and represents an appreciable amount of British labour, up goes the import tax in the States. This is quite as much a question for the wool manufacturer as for the farmer. We have known, and still know, many farmers who are careless about washing their sheep. As long as the sheep have been through the bath, all must be well. Annual disputes with the wool buyer have little effect on these farmers, who still continue to dip their sheep in cold water, and say they have been washed.

Now, we have for years advocated the tub-washing of sheep, which means the use of fairly warm water and a considerable expense in softsoap. The effect was a beautifully clean and bright wool, and at one time we have little doubt that the price obtained amply, and many times, over, paid for the extra cost of the washing operation.

When, however, we are told that there is no trade at Bradford, that the chief outlet for wool is to the United States, that the import duty for dirty wool is proportionately very small, and that Bradford merchants are opening establishments out there for the purpose of scouring wool of their own importing, which might have been cleaned on this side, it seems to be very evident that we farmers may be spending time and softsoap for very little purpose.

It is always pleasanter to offer an article for sale in the best of condition; and clean washing and careful winding of the fleeces often make the sale of a clip of wool a very pleasing experience. The buyer, whether stapler or manufacturer, is all smile; the cheque is promptly drawn, and as promptly honoured, and we think that we have done well. But as matters stand now, we might almost save the labour and expense of washing, and still make the same price per tod, for a large abatement of tariff on coarse and uncleaned farmers' wool might easily more

than account for recent neglect and present activity on the part of buyers.

Throughout a long experience, we never saw the wool stapler going his rounds in May, as we have seen him this year; and it must be a very healthy sign. He would hardly think it worth while to come before clipping is finished if he were not anxious to extend his operations by obtaining offers from new clients. It is not easy to ascertain exactly the present value, but we imagine a good clip is worth 22s. 6d., and might make a little more. There will be no harm done by asking for a good price to start with, as we can always come down, and it is very annoying to find, when we have got all we asked for, that we might have had more if we had been bolder. Certainly farmers cannot afford to throw away any chances.

Since the provision trade has been prevented from using the word butter in any form to describe butter substitutes, we think the principle might be extended to prevent the use of the word flannelette to describe an article made of cotton. The extended sale and use of that dangerous material might have been as great under another name, but the name must have been very misleading to the public, and we do not doubt that thousands of people who use it to-day are under the impression that it contains wool. The word really means "little flannel," and is descriptive enough, but not sufficiently so to the uneducated. How far removed this material is from the woollen material which it substitutes is shown by the fact that a flannel shirt may be used to extinguish fire, whilst a flannelette one is dangerously inflammable. It is outside our present sphere to enter fully into the public danger caused by the use of this material, which might fully justify prohibition of its wear, at any rate by children; but we think there is just cause why it should not be known by a name which in the public mind has always been associated with an entirely different material.

Work on the Home Farm.

Although we have recently heard farmers declare that they needed no more rain until midsummer, we doubt if the rain of the past week has been unwelcome to many. It has brought colder weather with it, and there have been very few hours of sunshine; but the rain has fallen so gently and persistently that a very great change has been wrought on all growing crops. There is now no doubt as to the clover and hay crop, for no amount of drought can materially affect it, and we expect to see a bumper return. This would have been more satisfactory had there been no old supplies, but we fear that there are too many old hayricks yet unsold to offer much prospect of any immediate competition for this season's crops.

Wheat, barley, and oats all present an improved appearance, but we notice many beans are very short in the straw; they are well podded, but short of haulm. The pods are in many cases very near to the ground, and the beans should be either pulled by hand or mown with a scythe. The binder is very convenient, but may leave too many pods unharvested.

There is yet a great deal of weeding to be done amongst corn crops. The acreage of wheat having been small, the necessary looking for thistles was quickly finished; but there is an unusual amount of work yet to be done amongst barley and oats. The thistles of different varieties must be scotched, and docks or similar weeds dealt with, if we are not to have millions more in the future. Fortunately, the crops are full of "plant," and will bear a little thinning in the process of weed destruction.

Rain has stopped swede sowing, and we shall put in a fair breadth of common turnips before drilling more swedes, which will be of the bronze top variety, and intended for spring feeding of sheep on the land. Mangolds are growing nicely, but not so quickly as the weeds, and our remarks of last week as to side hoeing are even more necessary now. A top-dressing of nitrate of soda is very valuable to mangolds in second leaf. It brings them quickly to the hoe, and the big mangold on July 1 is always a big, if not the biggest, mangold on November 1. As soon as the side hoeing is done, keep the horse hoe going between the rows. The roots cannot have too much air.

Mangolds are now showing well in rows, and they will soon be ready for side hoeing. Young mangolds will not grow if they are choked with weeds, and good mangold land is usually infested with them.

Fruit orchards are very promising. Plums have set well, but are not so promising as apples and pears, both of which at present promise record crops. Plums will be better than in 1901, 1902, and 1903, but not so good as in 1900.

Beef is a little better to sell, but mutton has been a little overdone in this week's markets, and prices are a little easier. We are clipping the ewes, and they strip well, being nearly all in good condition. They are young, and have been well kept. An ewe requires good food and a full set of teeth to rear a pair of lambs, and look well herself. The next thing will be dipping in about a month's time.

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Journal of Horticulture.

THURSDAY, JUNE 16, 1904.

Cockburn's Letters.

EXPECTATION has been on tiptoe for some months in anticipation of the appearance of John Cockburn of Ormiston's "Letters to His Gardener," which it was primarily intended should form an item in the latest "Miscellany" published by the Scottish History Society. At the last moment, however, it was decided to publish it separately, a fact that, to some extent, accounts for the delay in its publication. The letters number thirty-six in all, of which all except one were written to Charles Bell, gardener at Ormiston House. One is dated 1727, and the others were written between 1734 and 1744.

The writer has long been considered a pioneer of agricultural improvement in Scotland, and these letters exhibit him in the light also of a pioneer horticulturist. It is indeed no exaggeration to say that the views enunciated on garden management, on soil treatment, fruit culture, tree planting, and other items, are quite in line with present-day thought, and a very long way ahead of much that passes in numbers of gardens for horticulture.

He was hampered by the unwillingness of his gardener, and of other people whom he tried to benefit by his truly lavish and unsought-for advice, to take the steps he proposed. His lack of success in getting explicit orders carried out is painfully apparent in almost every one of his letters; a reason for which we may perhaps find in the cause that made him pen the remark that some new gardeners would not refuse to work in woods or nurseries "as your two fine gentlemen did." This can refer only to members of a gardeners' lodge, who were very strictly bound as to work and many other matters, and no doubt Bell himself would be in exactly the same position, and possibly might regard much of his master's advice as uncalled-for interference with matters he ought to have known nothing about. At the same time, Bell, like many other gardeners of the period, was a person of superior parts; not

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only had he charge of the garden, qualified to completely transform its design, but he also was responsible for the proper planting, pruning, and thinning of forest trees, raising nursery stuff, designing and planting avenues, constructing roadways and fences, with an oversight of men, and such outside matters to look to as buildings, poultry, cattle, pigeons, &c. The letters are written in the most familiar manner, and although Cockburn occasionally "blows him up," his references to his own "wife" and brothers, and to Bell's father and brother, show that the relations between employer and employed were then much less formal than now.

Cockburn was severely utilitarian. Flowers do not once appear. But he demands unlimited supplies of vegetables, particularly Artichokes, Leeks, Onions, and salading, and of these he desires to have the best. "I design," he says in one letter, "to try to improve the fruit in the garden, and also to have all kinds of garden stuff in perfection." "Don't spare dung." "Get good kinds of fruit." And in the case of these he was to make new borders of fresh soil, to keep them properly pruned, and to cut back too strong roots. Espaliers are commended on account of the little space they cover and the shelter they afford to garden crops. The tall, overgrown Apple and Pear trees then common are condemned, and dwarf trees ordered to be got to replace them by degrees.

Some of the most interesting items occur in letters concerning Bell's private affairs. His father cultivated a market garden at Ormiston, but in such a perfunctory manner that Cockburn's anger seems to have been stirred. Bell is accordingly advised to look after his own interest, and in spite of his father to trench and dung the ground, to root out the old fruit trees, to plant lots of Raspberries, to grow as many vegetables as possible, and to lower the prices in order to get more customers. The propriety of sending stuff to Edinburgh in carts instead of on pack-horses, as was the custom, is also broached, and though we have no note of Edinburgh prices, he gives the prices he pays at Hampstead for certain kinds, the inference being that they were cheaper than the Scottish market gardener charged. "Young Beans and Pease are 6d. per peck, fine Collyflowers at 3d. apiece, Cabbages at 2d., Gosp (Cos) Letuces at 1d. apiece." He thought Mulberries and Quinces would pay, but advises caution in planting in case they did not succeed. Both require a wall, and, as we know now, they are not a paying crop. It is a remarkable circumstance that at this early period a market gardener at Inveresk who supplied Edinburgh had retired on a fortune made in the business.

Cockburn often secured some special variety of seed, now Onions:—"Arch. Pringle, who has lost his wife, talks much of his Onion seed, so I send you a little of it, to give it a fair trial as soon as the weather will allow of." He also sends an improved prickly Cucumber, and seeds of Melons, concerning which he holds out no prospect of success. Pickles is all he expects from them. His glass was, of course, not extensive, only bellglasses which he sent from London, and dung-heated frames. This is interesting: Having a difficulty in getting Leek seed from Lowther, his usual London seedsman, he says:—"I called at Switser's shop in Westminster Hall . . . in order to get Leek seed. I took a few of other kinds, which Sir Ch. (Gilmour) has taken with him, and will send to my wife's lodgings in Edin." Bell was to compare the produce of the rival seeds-men, and as we find Lowther supplying in the future, it appears that Switser's must have been wanting in some respect.

Besides seeds, he occasionally sent fruit trees, now Sweet-water Grapes, again Morello Cherries or Mulberries. Turf was to be chopped up in which to plant these. "Plates"—flat. Stones were to be placed under them previous to planting. "Loom, with hot sand or ashes" is recommended for the Grapes. Bell, like other gardeners, had permission to dispose of surplus garden produce.

The directions concerning tree planting are equally—perhaps more—minute than those about garden stuff. Size of holes, how to arrange the roots, how Bell himself was to hold and steady the tree while it was being planted, the manner of compressing the soil about the roots, directions as to watering, are each given in detail. Quantities of Elms were sent from Herts, but Bell also layered numbers. Oak, too, was a favourite tree, and Swedish Firs, Horse Chestnuts, Beeches, Silver Firs, Oriental Planes, and Walnuts were also planted largely. Hedges were made, some temporarily of "Rice"—that is, stakes were inserted at short intervals, and the shoots of trees wattled among them.

Permanent hedges were almost exactly like those mentioned by Lawson and by Evelyn in the preceding century, with deep ditches, the soil from which formed a high bank, on the top of which a hedge was planted, with trees interspersed, and the face of the bank was furnished with Thorns, Sloes, Alders, Brambles, Sweetbriar, Privet, and Honeysuckle. The 1761 edition of Lord Haddington's "On the Maner of Planting, &c.," contains plans of hedges like these, which appear to have first been adopted by him. Afterwards they became quite common.

To those who can get it, and who have a taste for this form of literature, the book as a whole can be highly recommended.

Though diffuse, that is not a fault in letter-writing, and there are many truly wise sayings scattered throughout its pages, while the varied subjects treated, the trotting of mares, the selection of cocks, the curious remarks concerning pigeons as to selection, killing, feeding, &c., his notes on the London weather, and on the results of the hard frost of 1740, when nearly every kind of vegetable was killed, with the exception of Carrots. His disgust of "Our comon dirty hog stays, where nothing is to be gott but nasty barm, which we call Tuppeny, and by accident ane Oat or Pease cake." These and dozens of other items will be a delight awaiting the reader of its pages. The editor is Mr. James Colville, M.A., D.Sc. (Edin.).—B.

The Garden Village of the Small Holdings Association.*

One of the chief social topics of the hour relates to the increasing number of the unemployed in our towns and to the exodus of the rural workman from the country, which he leaves to swell the members of his class in the Metropolis and other great centres of population. The result of this movement is trouble on both hands, for while our city authorities are puzzled to discover a solution of the unemployed problem, our country people, and especially our farmers, find it difficult to obtain an adequate quantity of skilled labour, more especially between springtime and harvest. In some parts of England farming is becoming impossible; larger areas of land are annually being neglected or abandoned altogether, while the country people—as, for example, in that part of Surrey in which our colony is situated—are drawing almost all their supplies of garden and farm produce from London, the quality being in consequence inferior and the price exorbitant. Why has this difficulty arisen? I venture to believe that it is partly educational, partly that the younger men and women are dissatisfied with the humdrum routine of an unpromising country life, a dissatisfaction which is fanned by the contagion imparted by their friends in the towns and by the glamour and fascination of the music-hall and other alluring methods of excitement and so-called enjoyment.

Is there a remedy for this state of affairs? My belief is that there is, and that it lies in the natural desire of man for the possession of a home, of land, and of live stock, and that in order to acquire possession of the one or the other he will undertake responsibilities which demand unceasing labour and a simple and frugal method of existence. The lot of the agricultural labourer to-day is by no means a promising one. His only hope is in the receipt of higher wages, and this hope can only be gratified as he believes by obtaining employment in a town—where, however, though he fails to recognise the fact, his increased expenses absorb more than the increase in his pay. The education and the experience of the average farm labourer have unfitted him for the acquisition and cultivation of land on the purchase system. Although most men with the inclination are able to save something, the labourer is one of the few who has made no progress in this direction. He lacks enterprise and energy. As is customary with his class, his duties are performed at a jog-trot, and he is manifestly unable to emerge from his groove and to undertake a responsibility involving abundant self-reliance, which would necessarily follow upon his purchasing a few acres of land.

The miner, the collier, and the artisan, often with the exercise of less skill, obtain high wages, and are able to provide for the future if they choose. The railway porter, like the soldier of the imagination, carries position in his waistcoat pocket; the trader can commence business with a very small capital; but the labourer, who lives where successful shopkeeping is next to impossible, affords no analogy to either of these individuals. There are no prizes in the service of which he is a member, while the smallness of the wages he usually receives practically precludes the possibility of saving money, for few of us can realise the difficulty of putting aside a weekly sixpence from the pittance which must suffice to fill many mouths, and something more. Yet what often follows immigration to the town? The young, sturdy, and vigorous countryman is gladly employed by those who are in want of strong arms and steady nerves, the wages are comparatively high, and, in spite of more costly lodgings and more extravagant rations, life swings merrily along, and the young man drinks of it to the full. He often adorns his person in the orthodox style, sports an occasional cigar, joins a band of boon companions, some of whom were once precisely like himself, and thus he is gradually drawn into the vortex by which so many fine fellows are overwhelmed.

His robust constitution, however—part of his inheritance—

* Manchester Statistical Society; read by James Long, April 13th, 1904.

his frugal training, and his native air, have served him well, and he survives to marry and settle in one of those dismal, gardenless terraces which abound in our third-class suburbs, which he reaches by railway and tramcar, involving a costly addition to his rent. Gradually he sinks into the usual type of an overworked, unhealthy-looking town employé, struggling to rear a still more unhealthy family. What is the result? The family circumstances and environment are such that one more group of human beings is added by the countryside to the still swelling town population, with its submerged tenth, its hospitals, its workhouses, and its cemeteries. This is how human life—the very pith and marrow of our manhood—is being used up. There is, after all little difference in the method by which the human machine and the mechanical machine are respectively worn out; but there is this difference in the result—the human machine is reproductive, and its offspring reduces the physical power of the average man, and of the race to which he belongs.

Thus has the necessity arisen for the Small Holding and Garden Village movement, which is intended to assist in the solution of one of those problems which is gradually becoming national in its aspect. What, may I ask, will be the result of the movement in the course of time if it is adequately supported? for it is already affecting the health, the fortunes, and the prospects of large numbers of people, and, so far as I am aware, there is no colony, whether among those in Lincolnshire, in Worcestershire, Dorset, Wilts, Northumberland, or Surrey, in which a shadow of failure has appeared.

Among the results I look for the following:—

(1) The repopulation of the country districts. There are some twenty-seven families living on the colony established by Sir Robert Edgcumb in Dorset on poor land, where I believe only three or four families lived at the time of its purchase, and where one of these, the tenant, became bankrupt.

(2) The improvement of the health and physique of the people. I hold that it is impossible for children to live among the green fields, and to be fed upon milk, home-made bread, and fresh vegetables and fruit, without a change being effected in their weight, their size, and their mental and physical constitution. The animals of the farm improve in all physical directions in accordance with the character and quantity of the food they receive, and it has been shown by Dr. Hall, of Leeds, and others that precisely the same results follow the improved feeding of children.

(3) The prosperity of a larger number of people. The existence of a colony or garden village in any district cannot fail to be followed by beneficial results to the working native inhabitants of the district; and where, as is already the case in existing instances, the colonists succeed, it follows that prosperity is increased.

(4) Increased employment to an increased number of workers—(a) on the land, for the intensive culture of the small holder demands abundant labour, especially at the time of spring and harvest; (b) in the building trade, which in our own district is visibly humming; (c) in road-making, well-sinking, brick-making, hauling timber and other materials from the railway to the colony, in the manufacture of building materials, joinery, metal-work, and a hundred and one other articles. We have already employed a large number of men in each of these branches of labour; (d) in the handling of produce grown in increased quantities on holdings of small size, and in the conveyance of this produce to the consumer or to the large market.

(5) The occupation and improvement of the uncultivated, abandoned, and derelict land which still exists in large areas, and much of which—for it is mostly heavy land—is adapted to the production of large quantities of food, and especially of fruit and market garden produce. On the poorest clay, almost the poorest to be found in Kent, Dr. Bernard Dyer and his colleague, Mr. Shrivell, after five or six years of cultivation, have been enabled to grow enormous crops of almost all kinds of vegetables, some of which were supposed to be unadapted to clay, and converted a barren field into a productive market garden, growing as much as 45 tons of Rhubarb on an average of 4 years; 11 tons of Potatoes, 8 years' average; 8½ tons of Tomatoes, 2,800 bundles of Asparagus, 3 years' average; 17 tons of Lucerne, 6 years' average; 27 tons of Cabbage, 3 years' average; and approximately large weights of vegetables and fruit of many other kinds. In a word, the system will not only assist in the provision of abundance of food for the people of the locality, and adjacent markets, but in increasing the value of the land itself.

(6) It will contribute to a much larger extent to our ability to feed ourselves as a nation. It has been recently suggested by an agricultural expert that in the event of national difficulty the Potato might be grown to such an extent that were the wheat supply to fall short the people might still be fed; and, indeed, so long as manure is obtainable, there is barely a limit to the capacity of a skilled man who is industrious to produce food of many kinds.

(7) It will diminish the rates and taxes in rural districts by reducing the number of unemployed, and consequently the

amount of the poor rate, by increasing the rate per acre upon improved land; for this naturally follows, as where land rated to-day on account of its uncultivated condition at 5s. per acre becomes worth 20s. or 30s., owing to the labour which man has put into it, and by the increase in the number of houses constructed for the colonists. It is worth remarking that on Sir Robert Edgcumb's colony the rent was £240 per annum at the time of its purchase, while on the basis of the rentals of similar farms in the neighbourhood, the present rent, if let to a single tenant, would not exceed £180, owing to the diminished value of land. Nevertheless, the rateable value of the estate has been increased to £313, owing to its division among twenty-seven owners. Still further, I may add, the rateable value of the rural parishes of the Union in which this colony is situated fell from £80,000 in 1881 to £68,000 in 1895, showing a decline of 13 per cent.; whereas the relative value of the colony rose in seven years by 34 per cent.

The Culture of Hippeastrums.

The culture of the *Hippeastrum* is so simple, and the floral results so brilliant, that it well deserves the honour of specialisation. It appeals most strongly to the amateur specialist, owing to the fact that being a bulb, the possibility of error in the application of water is not so pronounced as in the case of plants which, lacking the means of reserving moisture, have to depend entirely on the periodical renewal of water supply to their roots, failing which they would soon display displeasure by the irritating process of flagging.

This remark is not intended to imply that care is not to be exercised in watering *Hippeastrums*, for this is fallacious. What is meant is that a failure on the part of the grower to supply its needs on one day will not weaken the constitution of this plant to such a disastrous effect as it would many others. If, however, a continued method of mismanagement be adopted, the results are not difficult to anticipate.

The propagation of *Hippeastrums* is effected in two ways, viz., by seed and by offsets. The latter method is a somewhat slow process owing to the plants not being largely given to reproduction in this way. The advantage gained, however, is that there is a certainty of the offset being of the same variety as the parent bulb, which is not the case with seedlings. In order to make success doubly certain, it is better to refrain from detaching the young bulb from the old one until the former has thrown forth roots of its own to support it in its separate existence.

It will be evident, however, that in reproduction from seed we can with our facilities for hybridisation introduce fresh vigour into the stock, and thereby materially add to the general constitution of the collection in a manner impossible in the process of division. Therefore, I strongly advocate increasing the stock by seed.

Seed should be sown thinly in pans early in the year, and plunged in cocoa-nut fibre in a propagating case having a brisk bottom heat. Cover the pan with a sheet of glass to insure a close atmospheric surrounding, and to prevent too rapid an evaporation of the moisture, for it is better, if possible, to refrain from applying water again until signs of germination are evident, which happy event should occur in about six weeks' time. At the first appearance of the embryo plant remove the sheet of glass, and admit a little air to the case, increasing this as they heighten in growth until it is thought safe to remove them from the case altogether. The house must be a warm one, with a temperature of about 60deg. As soon as they are fit to handle prick off the seedlings into pans, or what is better, place singly in "thimble" pots, guarding, however, against the dangers of the water pot by plunging these pots closely together in a box of cocoa-nut fibre, moss, or coal ashes. This will prevent too rapid evaporation. The syringe should be kept in constant employ, dewing them over at least three times a day, thus watering from a can will be unnecessary. Shading from bright sunshine will be needed, and as the plants fill their pots with roots they should be shifted into another size, but let not the shift be too pronounced.

Towards August discontinue syringing so often, and gradually dry off. Let there be no sudden withholding of water, a process which has destroyed the vital energy of innumerable bulbs and corms, for it is evident that if moisture be not forthcoming whilst the work of evaporation is still in operation, the bulb must necessarily undergo a process of gradual diminution. The true criterion to correct culture in this respect is the firmness of the bulb. If it feels at all flabby or shrivelled, some error has been committed, and should, if time allow, be immediately rectified or prevented from becoming more pronounced by the supply of water in a judicious quantity.—W. ROWLES.

(To be continued.)



Odontioda × Vulstekeæ.

In our notes on page 487 last week we spelt *Odontioda* wrongly. Instead of *Odontoida*, the raiser named it *Odontioda*.

Dendrobium nobile with 1350 Flowers.

Writing from Gothland Lodge, Avenue Road, Sandown, I.W., the undersigned says:—"The photo is of the *Dendrobium nobile* exhibited by me at the Sandown Spring Show, and mentioned in Mr. Orchard's report in your issue of April 21. The plant is growing in a teak basket, and is over 4ft through each way. There are sixty-five pseudo-bulbs, some of them carrying forty flowers, and, as near as I could estimate, the number of flowers on the whole plant was 1,350. This plant is pruned annually, and makes its growth in an ordinary stove, and is then placed in cool house to rest and ripen off. The plant has been grown from a small piece, and is now about eight years old.—J. BRYANT."

Cultural Notes: Stanhopeas, Cattleya Schilleriana.

Although the individual flowers of *Stanhopeas* are very short-lived, they are produced very freely and frequently, and their quaint forms and fine colours make them very attractive. They are usually mismanaged at this season of the year by being hung up in a dry, sunny position, the foliage becoming the prey of thrips, red spider, and other insects. The plants certainly enjoy light and air, but they must be protected from the sun's rays, and the atmosphere about them must be kept very moist.

The flowers being produced in a downward direction, and not upwards, as is usual, the use of wire baskets of open mesh is desirable. They do not relish frequent disturbance at the roots, this causing a flowerless state. For compost, use a fourth of sound fibry loam to three-fourths of sphagnum moss, adding plenty of rough nodules of charcoal or ballast to keep the moss open and allow free passage of the spikes through it. The proper time to rebasket the species is after flowering, this allowing ample time for re-establishment before winter sets in, a very moist atmosphere being desirable in the meantime.

A few of the best species to grow are *S. Bucephalus*, a stout grower, with handsome foliage, and flowers of a bright yellow, with crimson spots; *S. Devoniensis*, somewhat similar to the last-named; *S. tigrina*, a well known popular sort; and the lovely *S. eburnea*, a pure white, chaste, and elegant flower, very sweetly scented. If I were tied to one particular kind, this would certainly be my choice, as it is very free-flowering, and does not resent root disturbance so much as the others.

Cattleya Schilleriana is now in flower, and I am convinced that much of the non-success attending its culture is allowing the flowers to remain on the plants too long, especially before the latter have become properly established. I advise all who have newly imported plants now flowering to remove the spikes and place them in water as soon as they are properly open and the variety can be determined. The new growths will then have a chance of properly developing, and strong, healthy specimens will follow. On the other hand, if the flowers remain, and draw their sustenance from the recently formed growths, these will be irretrievably weakened.—H. R. R.

Aphides or Plant-lice.

Nearly all plants, in garden and field, and under glass, suffer from the ravages of aphides. These universal pests are most common in temperate climates, but even in the tropics whole crops are ruined by them. The aphid enemies of many crop and ornamental plants are very numerous in species. The aphides themselves are known by a great variety of names, such as green and black-fly, smotherers, and dolphins, while the disease they produce is sometimes termed "blight."

They belong to a group of insects called hemiptera, which are provided with a mouth used for sucking and capable of piercing the structures of plants, upon the sap of which they feed. They undergo what is termed an incomplete metamorphosis—that is, there is no quiescent chrysalis (pupal) stage, and they feed throughout their whole existence.

They damage plants in a twofold manner, first by sucking out the sap and so weakening the vitality of the plant, and secondly by stopping the respiration of the plant by blocking up the stomata (or breathing pores) of the leaves with their excreta. This excreta is not only of the ordinary kind, but

also consists of a sweet gummy substance that stops the "breathing" of the plant, and is called "honey-dew." This substance is passed out through two tubes, called "cornicles," situated on the back of the aphides. A few aphides, such as the Woolly-aphis, have no cornicles and produce no honey-dew. The skin of the plant-lice is provided with numerous glands which secrete either a waxy substance that covers the skin (Rose-aphis, Bean-aphis, &c.) or dense woolly masses (Beech-aphis, Woolly-aphis, &c.). In both cases the excreted substances have the power of throwing off water, and so of keeping the insects dry.

Life History.

Aphides may be winged or they may be wingless; as a rule winged and wingless generations occur in each species. The reproduction in aphides is very rapid. They not only breed in the ordinary way, but they can also breed without any males being present. Some aphides live only on one kind of plant, the Rose-aphis (*Siphonophora rosæ*) for instance; others live on two plants, migrating from one to the other, as the Hop-aphis (*Phorodon humuli*) which migrates between the Hops and the Prunes; others live on several plants, as the Bean-aphis (*Aphis rumicis*), which may be found on Beans, Peas, Docks, and Furze.

Some kinds, as the Rose-aphis, attack leafage and shoots alike; others, as the Bean-aphis, may even attack the fruit (pods); others the stem and twigs (Woolly-aphis). Not only do plant-lice migrate from plant to plant, but some can live both above and below ground, and may migrate from root to trunk or root to foliage (as the phylloxera of the Vine and the Woolly-aphis of the Apple).

The typical life-history of the aphid is as follows—The adult female or "mother queen" is wingless, and produces without the agency of a male, not eggs, but living young; these young are called "lice," and in a short time they resemble the wingless parent, and can themselves produce living young. This viviparous reproduction, where only females are present, can go on for many generations. Should a plant be covered with these aphides, their food becomes scarce, and then they have the power of producing winged females, which fly off to other plants, and these deposit living young. Towards the end of the year most aphides produce males as well as females; these may be either winged or wingless. These females, after being fertilised, deposit eggs at the base of buds and on the stems, leaves, &c., of plants. These eggs remain over winter, and hatch into the larvæ that become the "mother queens" with which this account of the life-history started. Some plant-lice live entirely during the winter in the egg state (Bean, Pea, Plum-aphis, &c.), others mostly as insects, a few eggs only occurring (Woolly-aphis).

The effect of weather on aphides is very great. Dry, hot, and sultry weather is favourable to them; the same conditions check the growth of the plant, and so the plant-lice soon overcome it. An excessive quantity of manure, especially nitrogenous manure, also predisposes the plant to aphid attack.

Rèmedies.

Aphides can easily be destroyed by spraying the affected plants with a softsoap wash. This is made by dissolving from 6lb to 10lb of softsoap in 100galls of soft water. The softsoap blocks up the breathing pores of the plant-lice, and so kills them. Quassia is sometimes added; this acts as an astringent to the leafage, and cleans it of the honey-dew and excreta formed by the aphides. For black-fly on Cherry, and for all those that produce a copious flow of honey-dew, it is a most useful ingredient. The quassia chips are boiled, and the extract added to the softsoap wash; 6lb to 8lb of chips are required to every 100galls of wash.

Paraffin emulsion is necessary for some kinds, as Woolly-aphis, which may also be attacked in winter by caustic alkali wash. For those which attack the root it is best to use bisulphide of carbon injected into the soil, a quarter of an ounce to every four square yards. Care must be taken with this substance, which is both poisonous and inflammable. The vapour of bisulphide of carbon liquid, used in the bee-keepers' "smoker," is said to be a very good remedy for green-fly, and does not injure the most delicate flowers. In all cases the aphides must be attacked as soon as an invasion shows itself, especially when the species of aphid has the habit, like the Plum-aphis, of curling up the leaves, and so of protecting itself.

Natural Checks.

Several insects prey upon aphides, and should be encouraged. The chief of these are ladybirds and their larvæ (*Coccinellidæ*); hover-fly maggots, which are the larvæ of the Syrphidæ; the larvæ of the lace-wing or golden-eye flies; and various minute hymenopterous parasites (*Chalcididæ*), which lay their eggs in the bodies of the aphides, and whose maggots destroy them. Man cannot, however, rely solely on the services of these beneficial creatures, but must check the increase of the aphides by washes as soon as they appear upon his cultivated plants.—("Journal of the Board of Agriculture.")

A North of Scotland Tour.

WHEN the sun was shining brightly on one of those exceptional days in the weeping month of August last year, I entered the office of Messrs. Cook and Son, in Princes Street, Edinburgh, my native and well-beloved city, and shortly emerged with a ticket for a circular tour in parts of the Highlands where previously I had never journeyed. Choosing an east coast train, it was only half an hour ere the Forth Bridge, with Hopetoun on the left, had been passed, and Kirkcaldy (Kir-caddy) reached. Those who read my notes on Hopetoun in the Spring Number for 1903 may recall what was there mentioned of the various local features in view from both the Forth Bridge and from Hopetoun. In passing, I may observe that the Earl of Hopetoun has returned from Australia since my visit to his noble place, and has lately resolved to retire almost wholly from public life. What may be a loss in the wider sense will be a great gain locally, for his lordship is still a young man, and will interest himself in the affairs of his estate and its neighbourhood.

In the Hopetoun notes of 1903 there was also a reference to the new naval base at Rosyth, but I am sadly lacking in knowledge as to what is being done there at present, though when operations do commence—in the building of the new township—I understand the Garden City Association will endeavour to realise some of its plans. The officials of the association have communicated with the Admiralty, and where could they get a greater or better opportunity of testing their Utopian suggestions? May they prosper!

And so, travelling close against the shore of the Firth of Forth, the ferny dales and mixed plantations of lovely Fifeshire were studied just as much as the engine's quickness left time for; but I had been many times in Fife during more youthful years, when the grandfather's home in

Kennaway enjoined an almost annual trip. The "Kingdom of Fife" had never appeared to me so beautiful before, however, and I felt myself trying to compare its characters and features and products with those of other Scottish and English counties that "Willie" has wandered through. Fife is a rich and varied country, and "Fifers" may well be proud of it. A Fifer is a marked man in Scotland, and even by his countrymen is looked upon as canny (or ultra-canny that would be to a southerner). "It takes a lang spoon tae sup wi' a Fifer," is one of the current sayings in the Border counties, and Fifers dwelling there have been twitted with the remark that they "were starved out of their own country"; to which the reply might be, "Na, na; we can' here tae show you how to dae things." But repartee of this kind is common between the citizens of every county.

Fife has numerous places of horticultural interest, but the record of them must be left for another time. The "domestic" attractions were sufficient for the occasion; nor did they lessen when the Tay had been crossed and the tall chimney stalks of the Dundee mills appeared in view, reminding me immediately of Cleopatra's Needle on the Thames Embankment, below the Savoy, by their singular form. Dundee has a long and interesting history, dating from the days of Malcolm Canmore, who was its founder, and the people are

loyally proud of their enterprising city. It is about twelve miles east from this part of the coast that the famous Bell Rock, or Inch Cape Rock, is situated, and we are nearly all acquainted with the tradition of "Ralph the Rover," that famous North Sea pirate, whom Dr. Southey in his ballad describes as having cut the warning-bell from its framework on the rock, "to plague the Abbot of Aberbrothock" (Arbroath), and some time after to have received the just punishment of his malice by being shipwrecked on the spot. The rock long since had a lighthouse erected upon it.

The town next in importance above Dundee is Arbroath, which recalls the name of Shanks and Son, the makers of lawn-mowers, to minds horticultural. It is a thriving seaport, close on sixty miles from Edinburgh, and receives the full benefit (?) of the north-east winds—those gentle zephyrs that blow so consistently almost straight from the northernmost realms of the Tzar and the Kaiser. And beyond Montrose we leave Forfar for Kincardineshire or the Mearns. Morley and Montrose are alliterative—and something more. Behind the town the River Esk, on which it stands, expands into a spacious basin, which has a beautiful and remarkable effect at high water: an inland sea behind the harbour bar. To those mindful of Scottish history, the event of Sir James Douglas's

journey to the Holy Land, carrying with him the heart of Bruce, will be recalled at the mention of Montrose, from which port he embarked. The scenery a little inland along the Kincardineshire coast to Aberdeen was described in guide-books of sixty years ago as being peculiarly desolate, and even more so in the tract of country which extends between Stonehaven and Aberdeen, and was then described as being bleak and sterile, presenting for the most part barren eminences and cold, swampy moorlands. But what was true then is hardly correct to-day, according to the testimony of my eyes. The skill, the keen skill and determination of the Mearns men, have altered Nature here as in Lincolnshire and elsewhere, and to pass that way in August, when the



Dendrobium nobile with 1350 flowers.

corn crops swayed luxuriantly, was a sight to be enjoyed. Aberdeenshire and the Mearns are certainly renowned for the cattle and sheep raising and their general agriculture. Thousands of head of both cattle and sheep are despatched (or were a few years ago) from the east coast ports to London and elsewhere.

Aberdeen was the limit of my journey in the north-easterly direction, and here I saw the magnificent new esplanade and sea embankment being made on that side of the city, a feature which will in time add immensely to the character of the town and the comfort of its citizens. No city in the United Kingdom is better built or more handsome than Aberdeen, and its cleanliness, spaciousness, solidity and completeness filled me with admiration. As a child of very tender years I had lived in the Woodside district with my parents, but the only impressions I retained from then were the sight of the tall-masted vessels and the great draught horses clanging their iron hoofs upon the granite streets. Truly this is "the granite city."

Those of us who see and admire the new King Edward VII. Bridge at Kew, which is built of Aberdeen granite—that glistening black-and-white-chequered stone—can form a better estimation of the beauty of Aberdeen, where every street, and pavement, and wall, and house, college, hall and chamber is constructed of solid

granite, here and there a change being made by the use of the red granite from Peterhead, a little farther north. But so adept are the masons and the sculptors of the city that these hard stones are chiselled into the finest monuments and statues of celebrities to adorn all the principal places, and the designs of the villas are not of that unending, toy ark style that causes suburban London, as an example, to be almost abhorrent, but they are varied, changeful, bright, and interesting. To those who doubt the extent of the perfections or architectural excellencies of Aberdeen according to my descriptions, let them make a point of visiting it. Accommodation there is plenty, and that of the best, and reasonable charges, and the swift electric cars will bear him or her into every district within the municipality. Do not fail to go and see one of the splendid quarries, and the hewing of the stones and the raising of the blocks from hundreds of feet below to the surface will afford a topic to talk of on many future occasions.

Though Aberdeen has all the substantial comforts, its parks and open spaces are conspicuous, at least from a horticultural point of view. One may briefly refer in this place to Duthie Park, which was presented to the city by Messrs. Duthie in 1883, and is laid out agreeably, with each of the features that make public parks attractive. It has open lawns, belts of shrubbery, ornamental water enlivened with feathered life, also statuary here and there, and broad, well-kept paths and drives. The handsome winter garden conservatory in the midst of the park is particularly well filled. Amongst the shrubs, one may mention the golden Hollies, Deutzias, Deodars, Pyrus Aria, Lilacs, purple Beech, Sycamores, Laurels, Rowan trees, Berberis Wallicki, Rhododendrons, Azaleas, and Ericas. The borders were gay with Foxgloves, Oenotheras, Sunflowers, Montbretias, Chrysanthemums, Stocks, Gaillardias, Nemesis, Pyrethrums, and many other similar plants. The area of the park covers forty-seven acres, and Mr. Harpur is superintendent.

Under glass, of course, anything can be grown, for the gardener then makes his own climate, so to speak. As already stated, the winter garden is a large and commodious structure. It contains amongst other subjects such things as Bougainvilleas, Passifloras, Cobæa scandens, Rex Begonias, Coleus, Schizanthus, Tibouchina macrantha, Abutilon megallanicum, Banana plants, palms and ferns in variety, Hydrangea paniculata, Lilium speciosum, double Petunias, Cannas, Roses, Hibiscus Cooperi, Daturas, Camellias, Abutilon Boule de Neige, Streptosolen Jamesoni, Begonia fuchsioides, Bignonia grandiflora, and a great many other things—somewhat of a medley, one might think—but it must be remembered that there are cool ends for greenhouse subjects and warm corners for the tropical ones.—J. H. D.

The Metric System of Weights and Measures.

The following paragraphs are from the report written by Edwyn Anthony, of the Weights and Measures Committee of the Herefordshire County Council (so far as it relates to the Metric system), which was presented to, and unanimously adopted by, the Council, April 9, 1904:—

Your committee have carefully considered the communication from the Decimal Association, which was referred to them by the Council at its last meeting. They do not recommend the council to support the Weights and Measures (Metric System) Bill which was introduced in the House of Lords early this session. They are of opinion:—

1. That the subject is so difficult, far-reaching, and important that it should be dealt with by the Government of the day, and not by private legislation.

2. That the Bill as it stands does not attempt to meet and minimise the serious inconvenience, confusion, and expense necessarily attendant upon the compulsory adoption throughout the country of metric weights and measures.

3. That the decimalisation of our coinage is as important as that of our weights and measures, and that either, without the other, is robbed of more than half its value. Legislation on either—or at least in regard to the metric system—should not be taken in hand without previous decision and public announcement by the Government of the course they intend to pursue with reference to the other.

Metric weights and measures are not at present used either in this country, its Colonies, or in the United States; in other words, the system has not yet been adopted by any of the English-speaking peoples. Moreover, in no country is the metric system in use without decimal coinage, while Russia, Canada, and the United States for a very large number of years have had decimal coinage without the metric system. Nor has any country introduced metric weights and measures first, and decimal coinage afterwards. Hence the Bill lacks historical precedent; it puts the cart before the horse, or at all events is premature until a decision has been reached in regard (1) to the advisability or otherwise of the adoption of decimal coinage, and (2) to the actual scheme to be chosen, if one be adopted. It should be added that a committee of the House of Commons in 1862 reported in favour of the adoption of a decimal coinage as a necessary preliminary to the adoption of the metric system of weights and measures.

NOTES



Park Royal Show.

The sixty-fifth annual exhibition of the Royal Agricultural Society of England will be held at Park Royal, Willesden, London, from June 21 to June 25 next. Price of admission on the first day will be five shillings, on the second and third days two shillings and sixpence, and upon the two last days one shilling.

Mr. Hutcheson of Storrie and Storrie.

Mr. D. C. Hutcheson, a partner in the firm of Storrie and Storrie, seedsmen, Dundee, has been the recipient of a handsome marble clock and ornaments subscribed to by 160 horticulturists on the occasion of his marriage. During the proceedings Mr. David Storrie paid a high tribute to the sterling qualities the recipient had shown in the positions he had honourably filled as an apprentice, journeyman, manager, and partner.

Messrs. Alex. Dickson and Sons' Tulips at Temple Show.

On the occasion of the visit of the King to the Temple Show, among the many exhibits which attracted his attention were the Tulips of Messrs. Alex. Dickson and Sons and the Cacti of Messrs. Cannell. His Majesty remarked upon the beauty of the former, and upon the curiously spinous character of the latter. We regret extremely that the fact of Messrs. Dickson and Sons having obtained a silver cup for these fine Tulips should have escaped record in our report, owing to the hurry of going to press on the same day.

Chrysanthemum, Fruit, and Vegetable Exhibition.

The American Institute of New York is preparing for one of the largest displays of fruits, vegetables, flowers, greenhouse plants, conifers, farm products, and farm implements ever held. Already applications for space are far more numerous than ever before, and it would not be surprising if the Herald Square Exhibition Hall will be crowded to the utmost. The trade exhibits will be very elaborate and interesting. One prominent seed house has offered premiums amounting to more than fifty dollars for vegetables grown from seeds purchased from them. The premium lists are now in preparation, and will be distributed at an early date in order that exhibitors may have plenty of time to grow for the liberal prizes offered.

Swarms of Flies in North London.

Writing from 8, Bartlett Road, Old Road West, Gravesend, a correspondent says:—"You will probably have noticed sundry newspaper paragraphs about 'plagues of flies' recently noticed in various districts of North London. I have been endeavouring to ascertain what these flies are, because I wished to know whether they were of a kind likely to injure fruit or vegetation. As yet I have been unable to get samples, but the general testimony seems to be that they are not gnats or mosquitoes, but stouter-bodied flies, not all of the same size. Some are said to be black. In several districts they have been reported as biting, in others not. I am rather inclined to think they are species bred from manure or offal."

Departmental Committee on the Fruit Industry.

By the end of this month the Departmental Committee which has been appointed to inquire into the present position of fruit culture in Great Britain, will conclude its sittings. The committee, of which Mr. A. S. T. Griffith-Boscawen, M.P., is chairman, began to take evidence in January, the inquiry having been instituted in consequence of complaints made by fruit-growers from time to time. These complaints were so varied that evidence has been taken—in private—on all matters affecting the industry, however slightly. Representative fruit-growers, jam manufacturers, and others from all parts of the country have appeared before the committee. A great deal of legal evidence has been taken, and information has been gathered concerning the traffic by road and rail, and the cost of carriage. It is expected that the report of the committee will be issued before Christmas.

Cassell's Popular Gardening.

Parts 5 and 6 of this work, which is being issued in fortnightly parts, are to hand. As we stated before, each part contains articles on most departments of gardening, as the greenhouse, indoor fruit, hardy fruit, vegetables, flower gardening, &c. The parts cost 7d. each, from all booksellers.

"Holidays on the Continent."

This is an illustrated booklet of a series of tours in less known districts of Holland, North Germany, the side valleys of the Rhine, the Tyrol, the Belgian Ardennes, and Scandinavia, easily and inexpensively reached by the Great Eastern Railway Company's routes via Harwich and the Hook of Holland and Antwerp.

"The Orchid Review."

The June number contains notes and articles as follows: Calendar of operations for June, *Cymbidium Parishii* var. *Sanderæ*, Leaf Mould for orchids, *Odontoglossum crispum* de Barri, *O. Waltonense* Rosefieldense, *Odontoglossums* from Rosefield, *Sobralia Ruckeri*, orchids at Oakwood, orchids at Kew, *Odontioda Vulstekeæ*, orchids in season, &c., &c.

Flora and Sylva.

The June number contains articles as follows:—Greater trees of the northern forest*; English names for trees and plants; the wood Lilies*; a gardener's view of science, old and new; the Australian Beef-wood*; packing of plants and flowers; the giant *Asphodels**; purple rock-cresses*; *Lælia præstans* and its varieties (with coloured plate); the *Viburnums*; *Idesia polycarpa**; national parks for the British Isles; and "Three things to work for."

Storage of Apples.

The conditions under which the prolonged storage of Apples may be successfully carried out has been studied during the past two years by the United States Department of Agriculture, and the cold storage of Apples has now made this fruit available practically the whole year round. Several hundred different varieties were stored in order to make the tests. It appears that there is no difficulty whatever in storing Apples in the autumn and keeping them until late in the following spring. All that is apparently necessary is to keep an equable temperature; just about freezing point is the most satisfactory.

New York State Fruit Prospects.

The fruit growers of Western New York now predict large crops of Peaches, Apples, Plums, Pears, Quinces, and small fruits. The cold weather kept the buds back, and killed the injurious insects to a large and unusual degree. The young buds and blossoms are perfectly formed, and in most cases numerous, so that all indications point to a large crop. The prolonged and unusually cold winter has not injured the fruit, it would seem, but has been a benefit, according to the claims of the experts who have made a thorough investigation. The earlier fruits are beginning to blossom, and make a fine showing.

School Gardens.

Although it would not be practicable at large centres of population to provide elementary schools with even small areas for cultivation by the pupils during their leisure time, the experiment might be tried in the country. Many children, both boys and girls, have great liking for gardening, and it is surprising how quickly they master the rough elements when given a fair chance. There being strenuous competition between them in production, whether of flowers or vegetables, they test all manner of methods, making constant inquiry among adults for valuable information. At some rural horticultural shows this pursuit of gardening knowledge is stimulated by small prizes for the most successful juvenile exhibits. Many benefits result: an additional interest is imparted to the young lives, leisure hours no longer hang heavily, and nature study is led up to imperceptibly. But it is in after-life, perhaps, that the gain from elementary education in gardening has its chief value. When once the taste is acquired it never wholly dies out; the moment any favourable opportunity for its gratification offers, the old longing revives. In the new South African colonies there are numbers of ex-soldiers who owe it largely to the gardening knowledge they picked up during early life that they are able to earn a comfortable living by growing vegetables, flowers, and fruit for local markets.

School Board and Botany.

A report from New Brunswick, New Jersey, states that the School Board of that town has excluded the teaching in schools of the subject of botanical cross-fertilisation "on account of the polygamous habits of flowers."

Appointment.

Mr. A. G. Bourne, late gardener to John P. Grylls, Esq., Car-drew, Friern Park, North Finchley, N., has succeeded the late Mr. A. Page in charge of the gardens here, for Geo. W. Kilner, Esq., Ravenscroft, Moss Hall Grove, North Finchley (railway station, Finchley, Church End, G.N. Railway).

Sussex Weather.

The total rainfall at Abbot's Leigh, Hayward's Heath, for the past month was 3.76in, being 2.04in above the average. The heaviest fall was 0.62in on the 31st. Rain fell on seventeen days. The maximum temperature was 78deg on the 26th, the minimum 33deg on the 9th. Mean maximum, 63.23deg; mean minimum, 44.28deg; mean temperature, 53.75deg, the average for the month. It is not often we have so much rain in May. There have, however, been no extremes of temperature either way, and everything has made a wonderful growth. With the exception of where the birds had eaten the buds of Plums and Gooseberries, a full crop of all sorts of fruits is now assured. Apples and Strawberries promise to be a "record" crop.—R. I.

May Weather at Belvoir Castle.

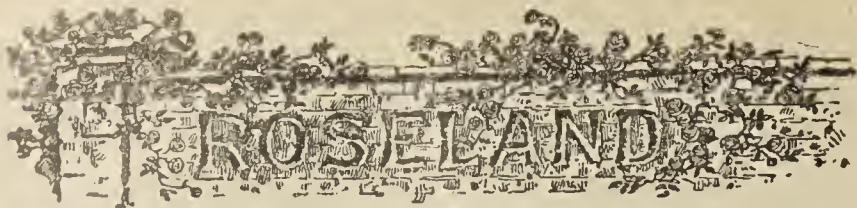
The prevailing direction of the wind was S.W., total 7 days. The total rainfall was 2.09in, which fell on 15 days, and is 0.27in below the average for the month; the greatest daily fall was 0.51in on the 31st. Barometer (corrected and reduced): Highest reading, 30.322in at 9 a.m. on the 20th; lowest reading, 29.462in at 9 a.m. on the 7th. Thermometers: Highest in the shade, 71deg on the 16th; lowest, 31deg on the 10th; mean of daily maxima, 59.41deg; mean of daily minima, 43.03deg; mean temperature of the month, 51.22deg; lowest on the grass, 25deg on the 10th; highest in the sun, 125deg on the 16th; mean temperature of the earth at 3ft, 48.96deg; total sunshine, 141hr 40min, which is 46hr 13min below the average for the month. There were three sunless days.—W. DIVERS.

Croydon Horticultural Mutual Improvement Society.

This society's usual meeting took place at their rooms, Sunflower Temperance Hotel, on Tuesday, June 7. One evening in each session is set apart for "Discussions," when any feature pertaining to horticulture, either in growing or general culture of plants, is introduced by a member. The subjects under discussion were principally relating to insect and fungoid pests. Exhibits came from Mr. W. Turney, Station Road Nursery, who staged half a dozen excellent plants of *Gloxinias*, the blooms being of fine form and colour. Cut blooms of *Primula obconica*, showing good varied shades, were staged by Messrs. E. W. and S. Rogers, High Street. The thanks of the meeting were conveyed to the exhibitors.

Fruit and Vegetable Farming.

The Royal Agricultural Society announce the issue of two new illustrated pamphlets on these subjects, entitled, "Practical Hints on Fruit Farming," by Mr. Charles Whitehead, of Barming House, Maidstone, and "Practical Hints on Vegetable Farming," by Mr. James Udale, of the Worcester County Experimental Gardens at Droitwich. Mr. Whitehead's pamphlet deals with methods of preservation and distribution, new orchards and plantations, the renovation of old orchards, and the cultivation of the principal fruits for market purposes. He also gives valuable information as to pruning, grafting, budding, picking, grading, packing, &c., together with a description of injurious insects and the methods of destroying them. Mr. Udale gives practical details for the cultivation on a farming scale of all the principal vegetables, these for convenience of reference being described in alphabetical order. The insect and other pest which injure vegetables and the approximate remedies are also described. Both pamphlets are published for the society by Mr. Murray at the price of 1s. each, but members may obtain copies at half price from the society's offices at 13, Hanover Square, or (on production of their members' admission tickets) at the Agricultural Education Exhibition to be held in connection with the society's show at Park Royal, Willesden, N.W., from the 21st to the 25th of next month.



Buttonhole Roses.

There is no doubt that when obtainable, a Rose is generally preferred to any other flower for a buttonhole. This is not surprising, when it is remembered what a great range of colour there is to choose from, not to mention the sweet fragrance of many of our most beautiful varieties. The fragrance of the most highly scented Rose is never strong or disagreeable, rather is it deliciously delicate, so much so as never to prove offensive to anyone with the most sensitive sense of smell. In making a selection of varieties most suitable for decoration and buttonhole purposes, I may perhaps allude to a few that are not considered by some Rose authorities to be good sorts. By this I mean that some may object to a variety if it be not an exceedingly strong growing and floriferous kind, forgetting at the time there are some varieties weak in growth, but exceedingly beautiful in flower, though the blooms be but few.

Often on discussing with some friends the qualities of some particular variety, I have heard the remark passed, "It is undoubtedly a beautiful flower, but one gets so few blooms from it that it is hardly worth growing." I may be different to the rest of my fellow gardeners, but I must say I am not so particular about getting quantity for my money, and am quite content to nurse many a bad grower for the sake of the few exquisite blossoms it may produce.

What can one wish for more beautiful than the blossoms of the Comtesse de Nadaillac? From the bud until the bloom is full is this lovely variety perfect in delicate colouring, form, and delicious fragrance, yet to get but a few blossoms it must be nursed with every care. L'Ideale is often classed as a vigorous Rose, but is seldom found to be so. This variety is one of those sorts given to vary in colour, a mixture of coppery red and deep yellow, outer petals occasionally streaked. For a buttonhole Rose this is exceedingly rich, especially the first blossoms, which I have noticed assume their best metallic tints under the influence of a cold, sunless season, when the buds are opening. As the summer wears on the colouring is not so good.

William Allen Richardson is a very great favourite, and a rampant grower, quite distinct in colour when blooms of the deepest orange shade are obtained, but it often has a washed out appearance from the effects of the sun. Under glass in the spring months the best colouring is usually to be seen; then may be had those deep tints and shades corresponding more with the extravagant descriptions one sees in catalogues of Roses.

One of the most beautiful displays of Roses it has been my pleasure to see was a house full of that grand old Général Jacqueminot. These were grown for cutting on St. George's Day, and the beauty of that mass of livid glowing scarlet crimson blossoms amid very healthy green foliage, is a very pleasant memory. Perhaps the greatest favourite of all is the Maréchal Niel, splendid Rose indeed, the best yellow we have. It must be grown indoors if one is to get the best out of it. In spite of its great charm the blossoms in perfection are a trifle large, otherwise in form, colour, and fragrance it excels.

Among other Roses suitable for buttonholes, doing best under glass, Niphetos for a white is perhaps the best. Catherine Mermet is extra fine, its light flesh coloured blooms being exquisite in half-opened buds. Two very pleasing shades of yellow are Perle des Jardins and Isabella Sprunt, the latter forcing extremely well. Safrano, a bright apricot, of which we find a lot in the cut flower markets, is fine in bud, and has nice dark foliage. As a cut flower, Beryl, a rich gold, is superb, and the long pointed bud of Killarney, a lovely pale flesh, is ideal. The delicate orange buds of Mdme. Pierre Cochet are excellent, so also are the rosy crimson buds of Papa Gontier. Two superb pinks, Mrs. W. J. Grant, an unique colour, with buds beautifully tapered, and Sheila, a bright rose, also well formed.

Liberty is entitled to first place as a velvety crimson. It is exceedingly good on all points, and very free. Brilliant is another of this colour, and deserves a place in every garden. Beauty of Walsnam, an old one, but still good, cherry colour, lovely and sweet. The tawny crimson Morning Glow is a very rich colour.

The foregoing are among the best one may wish for as buttonhole Roses, which should occupy positions in every garden. A longer list I may have given, there being many other suitable varieties, but 'twill keep until another time.—OSWALDSTREE.

Gadding and Gathering.

Some Temple Show Notes.

One always makes notes at the Temple Show, as elsewhere, even if they are never printed; but, snatching an unoccupied moment or two, I have tried to place mine on record, and probably they may be of some small value. Taking a glance at

ROSES.

first, the following are a few that deserved attention because of their merit:—Prince of Bulgaria, rich golden orange; Fabvier, somewhat like Paul's Carmine Pillar; Achebrodel, a bright rosy-pink Polyantha; Killarney and Irish Glory, both of which were in good form and bright. Three Rambler Roses that are considerably alike are Leuchstern, Blush Rambler, and Waltham Rambler. To my mind the latter is the most desirable. Its trusses are large, sweetly coloured, and very beautiful. Leuchstern is rather too loose and scarce, and Blush Rambler affords a semi-double. Each are pink, with a light or white centre. The recent H.T., Mrs. Mawley, was admirably staged by Mr. Geo. Mount, and proves to be good for early as well as mid-season use. The Wichuraiana rubra is a close-growing, single flowered variety of a crimson purple colour, with a light centre.

CUCUMBERS AND TOMATOES.

Roses and Cucumbers are not kindred, and I only give them sequence thus because they faced one another at the Temple Show! Of a number of varieties, the one that pleased me best by its useable dark green, even and not over-large appearance, was Sutton's Everyday. In Tomatoes the variety Eclipse proved to be firm, smooth, even, and of nice, moderate size and colour. As a fruit it is A1. The variety Dessert is one of the smallest of the reds that are eatable, and has as many as eight fruits in each long cluster.

SWEET PEAS.

Lastly, the Sweet Peas sent by Mr. H. J. Jones, of Ryecroft, Lewisham, brought with them a breath of the hay-making season of summer. Countess Spenser, blushing blush, is a remarkable variety indeed, and quite distinct in its charm and grace; Eckford gold medal novelty, the renowned Scarlet Gem, was also well staged; and among others were Lady Grisel Hamilton, mauve; Hon. F. Bouverie, rosy-fawn; Hon. Mrs. Kenyon, primrose; Miss Willmott, light pink; Salopian, rich crimson; and Emily Eckford, white. If I may drag in a reference to Pyrethrums, it would be to name two kinds:—Waterloo, brightest mauve-pink; and Vivid, richest of dark crimsons.

Kelway's of Langport, and Some Notes on Somerset.

Somerset has mainly been a peaceful county. Its name has always stood for sunshine in my mind—Somerset and sunshine—but I do not know really why. Long ago, when I ran about the banks of the Tweed in the Scott country, a dear old Somerset lady used to take me to her and tell of the beauties of that south-west of England maritime shire, and the memories must have remained—a land of sunshine. But though I now know that Somerset is beautiful in the main, yet those great bleak moors in some of its parts impress the mind with a feeling of their dire uninterestingness, and a doctor friend has told of his winter nights' journeys over them when they were deeply flooded; and I reflected on my Scottish hills, and liked them the more. Central Somerset possesses the curious physical feature of "islands" of hills rising from the flat surface. On the whole, it is a very agreeable county, especially in the region of the Mendip Hills and in the extreme west, where, again, the country is hilly and varied; and I like Somerset.

Castles are few, because old-time wars were not frequently waged here, though the scenes of the civil strife between Stephen and Maud are marked on Somerset soil, and we all remember that the Duke of Monmouth, who laid claim to the throne of Charles I., after suffering reverses in various places, was completely and finally routed at Sedgemoor in July, 1685. One passes Sedgemoor in the journey from Bristol via Durston to Langport, and, like Culloden, it is its memory that gives an interest to the passing scene. Langport also was the place of a battle, at which Charles I. suffered loss.

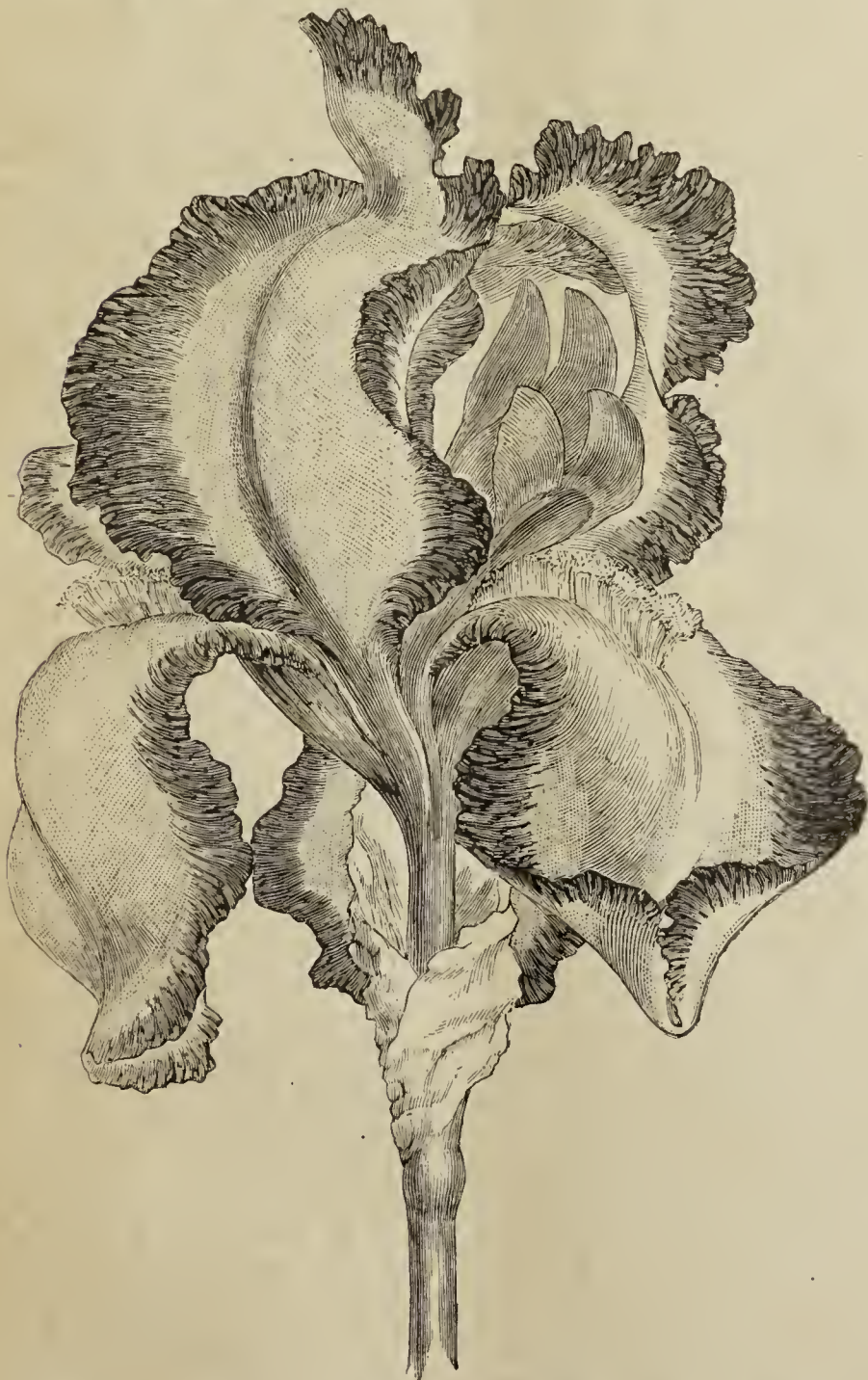
Nowadays, and, indeed, for over 200 years, Somerset as a county has been peacefully employed. It is rich in agricultural produce. Its dairy farms are celebrated, and its cheese, especially that which takes its name from Cheddar, of high excellence. The warmer valleys, especially towards the west, near Taunton, abound in orchards, and a large quantity of cider is produced. The principal manufactures are those of woollen cloth, worsted, and silk, at Frome, Taunton, Twerton, and Wellington; of gloves at Yeovil, Stoke, Martock, and Taunton; of lace at Chard; of linen and sailcloth at Crewkerne; of horsehair seating at Castle Cary and Bruton; of bricks, draining tiles, and the celebrated bathbrick, at Bridgwater, where are also large engineering works.

But this reads very much like a leaf from a school geography, and to save my fair fame I must adorn these pages with notes of another kind! It was the nurseries of Messrs. W. Kelway and Son, at Langport, that suggested a tour in this direction on

a recent date. The nursery grounds stand high, though some of the richest parts, which are devoted to *Pæonies* and *Delphiniums*, are in well-sheltered confines, hardly to be called straths. The acreage is extensive, and the land is thoroughly well stocked. Entering by the offices, I was escorted, in the absence of either of the Messrs. Kelways, by a foreman. The glass structures are of considerable extent, and the first subjects noted were the zonal and decorative (French) *Pelargoniums*, of both of which large numbers are cultivated, and fresh seedlings are raised by the firm. Two of the best zonals are undoubtedly King Edward VII., of a richer crimson than the variety Henry Jacoby; and, secondly, Ian MacLaren, which is a warm shade of salmon. The stock plants are placed out in benches.

Petunias are another class that receive special care, and the double varieties are remarkably fine. Callas, for a supply of cut flowers, were planted out, and in passing I may remark that cut flower orders are always being executed, the flowers, of course, coming mostly from the open air. A wholesale trade is done in Cucumber and Melon seeds, for the conditions here are favourable to the requirements for success. The new, well-boomed Potatoes were observed pushing up growths, and thus promising for an increase in due season, and the seed-pods of the *Primulas*, *Cinerarias*, and *Cyclamens* were ripening. Roses in pots form a feature, and with these there are quantities of hardy flowering shrubs, and plants for forcing, that are also grown in pots and plunged in open frames out of doors, for the supply of orders all the year round. Thus, if one desires to plant a *Wistaria*, or any kind of Ivy, *Elæagnus*, *Tecoma radicans*, *Ceanothus*, or dwarf Conifer, during the late spring or summer, these pot subjects are supplied, and the chance of failure is reduced practically to nil.

Collections of the leading kinds of herbaceous plants are to be found on a large break of land, the varieties in each case following one another alphabetically. That beautiful grass, *Glyceria spectabilis foliis variegata*, was seen in plenitude, and the flowers of *Centaurea montana rubra* were certainly the brightest amongst those of early May.



Iris plicata Madame Chere: u.

Flowers white, frilled azure blue. (See page 516.)

Between these herbaceous plants and the plunged pot shrubs there was a bed of a new fruiting plant, evidently a *Rubus*. This was the Japanese Honey-berry which Messrs. Kelway are offering, and of which probably few other stocks exist in this country. I have taken a description from their "Manual of Horticulture" (1s.), which is as follows:—"Native of an island in the Yellow Sea. The fruit is glossy and brilliant; in colour reddish yellow; of large size, with a fine though indefinable flavour. It commences fruiting with the early Raspberries, and continues until very late in the year. The canes are luxuriant and ornamental, and when in good growth are 1in through and 15ft high. The leaves are like those of the Rose, but much thicker, and covered underneath with purple thorns; the canes are covered with tens of thousands of purple spines, which glisten and appear very beautiful in the sunlight. We have much pleasure in introducing this new fruit to the British public. It has proved quite hardy with us, and fruited during recent seasons."

Doubtless its merits as a general fruiting plant will be proved before many years advance.

Thousands of hardy plants are propagated under handlights in the open grounds, these appearing like the tents of a great encampment of soldiery, since each glass is conical, and shaded with whitewash. The cuttings are kept fairly close, the soil beneath being of a light character, and it is not long before they are fit to be lifted, and placed individually either in pots or in beds. The process of dividing *Pyrethrums* and the general stock of herbaceous subjects was being carried out in other parts of the nurseries by batches of men, and though the plants wilt under the sun, I was assured that they soon prick up, and growth increases rapidly, till, by the autumn, each is a well-developed plant, ready to be sent anywhere. Border *Chrysanthemums* were also being planted in beds; and in specially prepared, sifted soil, thousands of young *Gladioli* "bulbils" (or "spawn") were being thinly placed in drills. This was during the first week of May.

Pæonies are indeed well treated, the richest and best portions of land being specially chosen for them. Mr. Wm. Kelway's name will ever be associated with the modern garden *Pæony*, and he has told how he was first led into the cultivation of this plant by seeing some flowers used at a wake in 1863. Tracing them to their source, he discovered an old woman's flower garden two feet wide on a road leading to London, and in which neighbourhood several Roman pavements were recently uncovered. To-day we have a host of varieties, or at all events of names, and some of these are superb. The garden varieties have seemingly in a large degree sprung from the two species, *albiflora* and *officinalis*, a few from *peregrina* and from *tenuifolia*. The two double forms known as *Reevesi* and *Pottsi* were imported from China, and from them has undoubtedly arisen the name of the "sinensis varieties." All the forms may be distinguished in their adhesion to these types, those nearly approaching *albiflora* have red veins to the leaves, with a flower stalk longer than in *officinalis*. The leaves of the *officinalis* are dark above and pale beneath, and the flower appears somewhat earlier. It is greatly in favour of the *Pæony* as a popular plant that by a selection of proper types the flowering season may be extended over a period of two months.

The American growers have for once in a way been first in forming a *Pæony* society, while we here in Great Britain remain without one, even though the best varieties have come from British soil. Only a few of *P. officinalis* varieties were in flower at my visit, but the many acres of plants were promising admirably, and they are this week at the height of their floral glory.

Gaillardias, *Pyrethrums*, and *Delphiniums* each were sturdy, and these will engage our attention in due season. *Dahlias* and *Aquilegias* are also a feature by themselves, and large quantities are sent out.

While I noted a few subjects of special ornamental characters, only the following can be named, and of these Kelways' form of *Phalaris arundinacea* (or Gardeners' Garter) was particularly pretty. The leaves in this case are nearly white, and the growth is more bushy than in the average form of the plant. *Euphorbia pilosa* major enlivened the border, and *Erysimum pulchellum* furnished another dwarf-growing rich yellow-flowered plant. *Asperula tinctoria* deserves attention, while the early alpine *Phloxes*, especially *P. setacea*, as seen at Langport, were very bright. The Lyme grass—*Elymus arenarius*—is less often seen than its merits for decoration deserve. The *Valerian* is stately and vigorous; *Iris albo-purpurea*, a good water-plant, is sometimes asked for unavailingly, but it is at Kelways'; the collection of *Anbrietias* is replete, and so is that of the *Dianthus*; but as our opening statements described, everything is in marshalled order, and practically everything can be supplied.

I have written nothing of the shrubs and trees and fruits, but these I had the privilege to see, and all were shapely and in good condition. A new railway between Langport and Castle Cary to the north-eastward is now being built, and the increased facilities that this will afford should revert to the greater success of the firm's business.—WANDERING WILLIE.



Iris plicata var. Madame Chereau.

The "plicata" Irises (syn. *I. aphylla* of gardens) are characterised by the flowers all having a beautifully coloured, frill-like margin on a white ground. The variety of which a flower is figured on page 515, is one of the best. It is white, elegantly frilled with azure blue—a most charming Iris. In height, it grows 32in or thereabouts, and succeeds under the same treatment as that given to the German Irises.

Carters' Invincible Prize Gloxinia.

This title applies to a strain which comprises varieties of many colours, and not necessarily white alone, like the one shown on page 519, which is from a photograph sent by Messrs. J. Carter and Co., of High Holborn, London. The firm is proud of this strain, and deserves to be, for all who saw the excellent plants—bushy, vigorous, and free flowering—at the Temple Show, were convinced that they could not be bettered.

New Hybrid Dianthus, Lady Dixon.

This fine garden plant is the production of an amateur, who requests that the profits arising from the sale of the plants are to be given to the fund for the payment of the new Horticultural Hall in Vincent Square. It obtained the award of merit of the Royal Horticultural Society on May 7th, 1901. It is the result of crossing a Sweet William (*Dianthus barbatus*) with the pollen of Uriah Pike Carnation (*Dianthus Caryophyllus*). The flowers are quite double, and of a rich deep cerise colour, the foliage and appearance of the plant being that of a Sweet William, while the flowers are like those of a Carnation.

The Puccinia of Hollyhocks.

This paragraph concluded the article on the Hollyhock, page 444:—With regard to the Puccinia of to-day, I much question whether any specific in the way of dressing, &c., has yet been discovered that has proved effectual in eradicating it, but as a preventive I have found nothing to equal a preparation sold by chemists to farmers for dipping sheep, which appears to be a mixture of tobacco powder and carbolic acid. A sprinkling of this on the under surface of the leaf in the early stages of growth is a great help in warding off the attacks of the fungus in question. It acts also as a means of keeping down the red spider, to which Hollyhocks are very subject in dry seasons; but if the hardy treatment is adopted in all its particulars, both in the raising of the plants and in their after cultivation, Puccinia need not cause any terror.

Beauty of the Flowering or Manna Ash.

An ornamental tree in cultivation is the flowering Ash, or Manna tree. It is extremely pretty when in flower, which, with us, is at this time, the close of May. It is not known as it should be. Even nurserymen are apt to underrate it, and others, never thinking of an Ash as a flowering tree, pass it by without a thought of its utility as a flowering tree of beauty. I have admired it before, but to-day (writes Mr. Meehan in an exchange), passing some trees which were transplanted last year, and which, as a consequence, are blooming while still quite young, their nice appearance led me to pen these notes concerning them. The flowers are in good-sized clusters, greenish white, with yellow stamens, the cluster almost fringe-like in appearance, and of much beauty. Looking in Nicholson, to see if its old name, *Ornus europæa*, was still retained, or whether it was now classed with the true Ashes, I found a very life-like illustration of the cluster of flowers, which those having this work would do well to examine. The name, it seems, is now properly, as most nurserymen have it, *Fraxinus Ornus*. As I have before remarked in connection with other trees, it is well to head back those of a flowering nature, to keep them low branched, to enjoy their flowers. The large growing Magnolias, the Catalpa, Tulip tree, and other handsome flowered trees, including the flowering Ash, should be kept low branched, if no special reason for tall trees exists.

New Garden Pink, Snowdrift.

This is a very lovely garden Pink. The flowers are of large size and fine form; they are pure white, with a slight tinge of pale rose in the centre. It received the order of merit of the Royal Horticultural Society on the 9th day of June, 1903, as a hardy garden Pink.

Fruiting of the Hazel Nut.

To the ordinary observer, the catkins seen on Hazel bushes in early spring are the only flowers borne, but this is not the case. These are the male flowers, and, usually, are situated higher up the stems than the female ones, which are small, red in colour, making so little display that they are not observed unless one is close to the bush. It often happens that the male flowers are forced out under peculiar conditions of the weather in advance of the female ones, and then no crop of nuts results. In fact, this is the chief reason why disappointment in the crop often occurs. When grown for commercial purposes, as they are to a great extent in Europe, the bushes are not pruned until after the flowering is over, because the tops of the shoots, the portions usually pruned away, are those on which the male flowers are, and to cut them off too soon means, of course, that the female flowers cannot become fertilised.

Floral Decorations.

An illustration representing a broken column made recently by Paul Niehoff, florist, at Lehigh, Pa., is given in the current issue of the "Florists' Exchange." The design stood 4ft 6in high. The base was first filled with Smilax, then covered with Lily flowers and buds, Roses, and Swainsonia. The column was enveloped in white Carnations and garlanded with pink Roses and white Swainsonia. The Rose used is a seedling of Mr. Niehoff's, being of a light pink colour, deepening toward the centre. It has not yet been named.

Hymenanthera crassifolia.

In general appearance this low-growing hardy evergreen shrub is not unlike a Cotoneaster. It has the same sub-procumbent growth as *C. microphylla*, the same small, closely-arranged leaves, the same profusion of berries; yet it is very distinct both botanically and ornamentally from the familiar evergreen alluded to. *Hymenanthera crassifolia* is conspicuous by its pearly-white berries, which are freely produced during the autumn and winter months. They are of the same size as Mistletoe berries, but are more elongated, and are chiefly borne at the base of the branchlets. This shrub is suitable for planting near the sides of walks, or preferably on mounds, rock-work, or the sides of steep declivities, from whence it can be viewed from below, and its numerous and curious berries be seen to the best advantage; generally speaking, however, positions that are suitable for Cotoneasters are suitable also to this distinct, white-berried shrub, which is a fine companion to the Cotoneasters. *Hymenanthera crassifolia* is a native of New Zealand. It is quite hardy, grows freely, and flowers and fruits profusely in the Coombe Wood Nursery of Messrs. James Veitch and Sons. It is one of the most novel and chastely ornamental of low-growing evergreen shrubs.

A Water Garden Scene.

The fantastic drawing on the opposite page concisely presents before us the results of effective planting. To achieve similar scenes is only a matter of careful labour. The plants must be judiciously chosen and planted according to their several requirements. The Water Lilies may first be set in baskets (hampers), which are then lowered 2ft, more or less, into the water. The Cape Pondweed (*Aponogeton distachyon*) ought also to be included for the sake of its white blossom, and around the edges there may be Typhas, Rushes, Sagittarias, Irises, Wood Lilies, Gunneras, Fennels, Sparganium ramosum, and Butomus umbellatus. Those requiring a longer list might choose also the following: *Caltha palustris* and *C. polypetala*, *Iris albo-purpurea*, *I. laevigata*, *I. siberica* varieties, *Ranunculus Lingua*, *Myosotis palustris*, *Alisma Plantago*, and *A. P. lanceolata*, *Acorus calamus variegatus*, *Typha Shuttleworthii*, *T. stenophylla*, *T. latifolia*, *Pentandra virginica*, *Hippuris vulgaris*, *Sium latifolium*, *Equisetum fluviatilis*, *Nuphar lutea*, *Scirpus lacustris*, *Ranunculus aquatilis*, *Glyceria plicatus*, *Acorus gramineus*, *Mentha piperita* and *M. sativa*, *Juncus effusus*, *Potamogeton lucens* and *P. crispus*, *Zizania aquatica*, *Sagittaria variabilis*, and *Myriophyllum proserpinacoides*.



A Water-garden Scene.



English Figs.

The newspapers have lately, to the surprise of many, been recording the fact that some fig trees yet survive in the central districts of London, which recalls another fact, that at one time the tree abounded in the City, yielding good crops most years. I do not think this is explained by the supposition that our climate was much more genial than it is now; local changes seem to account for it. The surface of London has gradually been elevated during the last 500 years, though there were some little hills. The greater part of the City during Saxon and Norman times lay in a sheltered valley, screened by large woods and forests, also by the "northern heights" and the Surrey hills. There were marsh lands near, on which the sun had full play, for the buildings were low, hence the City, both warm and moist, approached a sub-tropical climate. Loudon notes that in Sussex at present, and especially near the coast, the Fig thrives better than in any other part of Britain. At Tarring, near Worthing, existed a fine orchard of Figs early in the last century, and Arundel Castle, the seat of the Duke of Norfolk, was renowned for its old and prolific trees.—J. R. S. C.

Atavism in Rose Trees.

A correspondent, writing to the editor of the "Pall Mall Gazette," says:—"I shall be glad if any of your readers can give me an explanation of the following curious phenomenon:—Against my house grows a large Rose tree—a Gloire de Dijon. It has been there many years, and reaches to the roof. Last year it blossomed freely, but, strange to relate, the great majority of the Roses were Dog Roses. There were new branches covered with the characteristic Dog Rose leaves, as well as blossoms. I did not prune the tree, but left it to itself. This year there is scarcely a single Dog Rose on it, but a large quantity of the proper Gloire de Dijon blooms. Even the branches which last year bore Dog Rose leaves have this year clothed themselves with the regular Gloire leaves as well as flowers. I can understand a tree from some reason or other reverting to the original type, but I cannot understand how the characteristic 'low type' branches should in a single season recover themselves, and become branches of a higher order. I am much puzzled by this curious fact, and I should like to know if it is a common one. I have never heard of anything like it before."

In order to see what Mr. W. R. Raillem thought of the matter, we sent the above to him, and he writes:—"My suggestion is that a strong briar sucker grew up between the Rose and the wall—perhaps just behind the main stem—unnoticed till it had not only thrown out strong laterals, but also flowered. So much for last year. A vaguer suggestion for this year is that the jobbing gardener or somebody cut away as much of the sucker as he could, but could not get at the whole of it, so that the wild growth has not quite disappeared. That any of the branches actually reverted either one way or the other is no doubt a misapprehension, due to imperfect observation.—W. R. RAILLEM."

Gardeners' Royal Benevolent Institution.

Mr. Harry J. Veitch writes to say that, "Having consented at the request of the committee to preside on June 28 next at the Hotel Metropole, Whitehall, at the annual dinner in aid of the funds of the Gardeners' Royal Benevolent Institution, I venture to hope you will accept the accompanying invitation, and give the honour and pleasure of your presence and support on the occasion."

"The institution is an important national charity, being the only one of its kind in the United Kingdom, and during its existence it has distributed in permanent and temporary relief upwards of £100,000. There are now upon its funds 207 pensioners, 121 men and 87 widows, entailing an annual liability of nearly £4,000 for annuities alone, irrespective of allowances made as a measure of temporary relief to distressed applicants. To meet these liabilities, the only assured income is about £900, leaving the remainder to be raised by donations and subscriptions, towards which object the dinner is held."

"I am also hoping that additional aid will be forthcoming to enable the committee to extend the work by assisting more of the ever-increasing number of deserving applicants, of whom there are already thirty-eight on the list, several being quite blind. I know by sad experience that the continuous calls upon the generosity of the benevolent public render it increasingly difficult to obtain that support for an old-established charity connected with what may be termed a national industry, which under ordinary circumstances might reasonably be hoped for, yet I earnestly trust my endeavours on its behalf may meet with much success. Having been connected with the institution since 1867, and for the past sixteen years as its treasurer, I can vouch for its efficient management and its good work. I therefore particularly commend its needs to your kind consideration, and, should you be unable to be present at the dinner, I earnestly trust you will favour me with a contribution to my list in aid of the cause for which I plead.—HARRY J. VEITCH."

Rose, Caroline d'Arden.

Bad season or good, with me, in a town garden, this Rose comes into the limited catalogue of "old reliables." It was raised by Messrs. A. Dickson from a seedling as far back as '88, and still continues one of the most prolific of blooms, and very fragrant. Had I better soil, it might suit as an exhibition Rose; but, as it is, it gives fine full blooms continuously from the end of May for months in an exposed position, and without any pampering. I draw your attention to it, as I seldom see it referred to.—W. J. MURPHY, Clonmel.

British Gardeners' Association.

In the report of the Essex Hall meeting, which appeared on page 420, the writer showed pretty clearly that, although the association was formed by the votes of a large majority, there was someone present with acumen enough to detect the weak point in the prospectus. All honour to Mr. W. P. Wright for having registered a protest against the idea of forming a ring-fence round the profession, through which all must enter or be cut off from the benefits in the future to be conferred by the august society. Such a course is entirely out of joint with the spirit of the age, and instead of having the effect of improving the lot of gardeners by encouraging them to take concerted action, it will, if persisted in, lead to division in the camp. Soon there will spring up numbers of "ring-fence" gardeners' associations, each claiming to represent and protect the interests of true gardeners, and the competition thus engendered between the members of the several societies will make matters worse rather than better. For this reason, let me urge the rank and file of gardeners to fight like grim death for the open door, so that a strong society may arise, based on equity and justice for all.

The clause which states that "The requisite five years' training must be in gardens of repute" may appear harmless enough on the surface, but in reality it supplies the power by which the society may be practically converted into a gigantic "trust," for the benefit of the friends of the "inner circle." By degrees the screw will be tightened, and then good-bye to that freedom of action, that opportunity to rise through merit alone, that should be the treasured possession of every Briton. Our Cyphers, Findlays, Simonites, "Capability Browns," of the latter day, and hosts of others prominent in the world of horticulture, served no time in "gardens of repute," but they have added lustre to the achievements of horticulture because of their native genius; and I say emphatically, may there be confusion among all who would discourage such men in the future, because they enter not through the door of the "ring-fence."

A society which begins its career by withholding information as to its constitution until the time for voting comes is not likely to have either a long or a prosperous life. Mistakes are often made amid the excitement and enthusiasm of a public meeting, but that is no reason why they should remain unadjusted to prevent future useful and harmonious work. So let the watchword go round:—Fight for the open door, for justice, and for the advancement of the men who make the best of their opportunities.—H. D., Warwick.

A correspondent, writing from South Lambeth Road, under date June 6, says:—"While syringing a Bay tree in my garden this evening, I disturbed a very perfect specimen of the Lime Hawk moth. Never having seen one so close in town is my excuse for notifying the circumstance."

Notes from Dublin.

Impossible! Simply as impossible to keep the weather out of one's notes as it is out of a gardener's life, and this in spite of the fact that the printing powers that be don't care for too much weather. Neither do we, as a rule. However, we are at present at peace with it—peace with plenty prevails, for the promise of May is on the verge of performance with Strawberries galore, and as for the rest, we shall see what we shall see later on. The "merry month" was merciful—no frosts, rude winds, or anything else to shatter the magic of spring, as bounteous Nature in her great march past lavishly flung over the landscapes such wealth of blossom as is rarely vouchsafed to us. The great She ignored us last year—took a long rest—and whether that does, or does not, account for all this "muchness" is her secret. That's all, Mr. Printer, anent your *bête noir*, and that's a good deal.

The ornamental part of gardening, and it goes without saying, has been very satisfying. Flowering shrubs have been, and are, simply marvellous. In an old-world garden at hand, *Edwardsia* (*Sophora*) *microphylla* fascinated all who saw its pale yellow, comparatively large, bell blossoms nestling among the soft *Acacia*-like foliage. Two bush-like trees of the New Zealand shrub, some 12ft high, on sturdy, clean stems, are fitting monuments, to some garden lover of the long ago. They tell no other story, nor do the massive, antique Yew hedges yards through, nor the gnarled, twisted, and interwoven stems of a giant *Wistaria*, all the love of someone gone and forgotten. *Collegnes*, the quaint old place is called, which some twist into *College* knees, others *Colleens*, and still another *Col-leg-nys*; hence, to refer to it is one of the little worries of life. But what's in a name? Dear, delightful old garden with a past! Would that we could tell thy story.

Great globes of wonderful transparency have been the blooms of Japanese *Pæonies*, forms of the old *Moutan Pæony*. Alas! Their time was short, strong suns out-blinded them; nothing now but handsome green or bronzy foliage, and it's long to wait for another lighting up. The white Portugal Broom, a cream coloured Broom, and the bicoloured *Andreanus* made a brave display as we saw them at Sutton House on the rocky promontory of Howth. There is some doubt as to the name of the cream coloured kind, possibly it is *Cytisus scoparius pallidus*; anyway it is the most telling of the trio.

In a recent run around the College Botanic Gardens with Mr. Burbidge, we noticed *Onosma taurica* in fine form depending from a wall, and the Rose *Acacia*, *Robinia hispida*, with its pretty, pink, pea-like blooms set in handsome foliage was quite irresistible. *Vellta pseudo-cytisus* is a curious cruciferous kind of plant with tiny, turnipy blossoms, but a shimmering of blue on the "brim" where *Lilies* blow is a delicacy due to *Linum perenne*, a floriferous *Flax* which shimmers away till the near approach of winter. *Nymphæa chromatella* is early (June 8th), having some noble blooms studding the dark marbled foliage. The *Lilies* here now have a douche on fine mornings from a waterpot and rose to take off the previous day's dust, and they seem to like it. Blowing in the borders is *Lilium umbellatum*, something in the way of *Davuricum*, but brighter; *Libertia formosa* gives good spikes of white flowers, is commendable for cutting, yet suggestive of loose arrangement to do it justice. Quite *Erica*-like is the beautiful Chilean shrub, *Fabiana imbricata*, it begets covetousness to have it. *Tamarix gallica* is quite the plant in the "specimen" quarter, where a couple of students were busy with botanical boxes. From amongst the broad, blue-grey foliage of

Tritoma aloecoides the pokers are springing; this is a very characteristic member of the fiery family. Happily named is *Mimulus cupreus* "Brilliant," twice the size of the type; it is a taking plant in its way, and—we took some (not surreptitiously). Last, not least, in the College Garden collection must be mentioned the purple form of *Phormium tenax*, which, if the babies we saw do not grow out of their goodness, is a decided gain to our noble foliaged hardy plants.

An additional note on flowers must be made to tell of a glorious spike of *Eremurus Elwesianus* seen at Drummond's, in Dawson Street, amongst a group of good things backed up by Palms, with which the firm garnish their windows for the benefit of the man in the street.

We have not heard any grumbling from our friend the farmer beyond "there's fly in the turnip," which, by the way, has not yet reached the garden. Late meadows are, paradoxically, early and promising, early ones somewhat late and thin, but the noble tuber is all that it should be to date. Potatoes for present use are invariably a source of friction with the cook. That, at least, has been our experience till now, when, luckily, with a consignment of "Scottish Triumphs" things are easy. As a matter of fact, we have never seen it equalled at this particular season by any vaunted variety, for it still cooks to perfection.

We wish we could say the sample mentioned was *Green Isle* growing, but it is not, being *Scottish Triumph* in two senses; so to give credit where credit is due, it goes to the "Land o' Cakes." To complete our note of admiration of this bonnie tuber we must say that it not only cooks well, but looks well, being long, smooth, and shapely, and nothing better is wanted in the humble opinion of—K.



Carter's Invincible Prize Gloxinia.

Tilgate, near Crawley.

The members of the Crawley (Sussex) and District Gardeners' Mutual Improvement Association and friends to the number of about sixty, visited the beautiful grounds and gardens at Tilgate, by the kind permission of Mrs. Nix, on Tuesday,

evening, June 7, and spent a most enjoyable and instructive time in the company of Mr. J. A. Nix, the president of the association, who very courteously conducted the visitors over the estate, and pointed out and explained the many botanical and other beauties that here abound. The members were driven to Tilgate in brakes, and their arrival was a lesson of punctuality, six o'clock—the appointed time—chiming as the mansion was reached. Mr. Nix personally received the visitors at the entrance to the conservatory, inside of which tea had been generously and thoughtfully provided. This unexpected treat over, the party, under the capable supervision of Mr. Nix and Mr. E. Neal (the head gardener), commenced an inspection of the grounds, the first attraction being a splendid specimen of the Tulip-tree near the house. From this point the general appearance of the lawns was particularly noticeable, and it did not require an expert to decide that they were in a most beautiful condition. Situated in the centre of these is an excellent example of the *Wellingtonia gigantea*, well furnished from top to bottom; and at another spot near the mansion a *Purple Beech*, said to be one of the finest in the country, claimed a close inspection.

Of double crimson flowering Thorns several are dotted here and there, as well as stately Cedars and *Picea Nordmanniana*, and growing close to the lovely lakes a choice specimen of *Gunnera manicata* was seen and admired. A visit to Tilgate is necessary to realise and appreciate the many beautiful pictures that meet one's gaze at practically all points. The lakes,

spacious and clear, are delightfully situated, being bordered on one side by the forest Pines, and on the other by the innumerable Rhododendrons and Azaleas that grow and blossom in such profusion on the undulating grounds. Truly, indeed, the scene that presents itself here is inexpressibly picturesque and romantic. It is the natural beauties of the place that give to it its glory, and probably there is no estate in the country that possesses in so large a degree these important characteristics. The wild garden and the wilderness are stocked with growths of much magnificence, but the great feature is the wonderful display of Rhododendrons in all their brilliant colours. One would have to travel many miles to see a variety of this pretty flowering shrub to equal those at Tilgate. The Azaleas, too, of which there are hundreds of kinds, says the "Sussex and Surrey Courier," came in for a great deal of admiration, but many of these, of course, had blossomed too early to allow of their being seen on this occasion in all their floral beauty.

The innumerable specimens of Narcissi, in which Mr. Nix evinces so keen an interest, and for which Tilgate is so famed, were also past, but there was an abundance of other plants and flowers to please the eye. The Bamboos are a striking feature, and it is believed that on no other private estate in the country can such a handsome collection be seen. In the kitchen garden there were also many things to admire, and the contents of the fruit houses were remarkably clean and healthy, speaking volumes for the care and skill bestowed upon them by Mr. Neal and his staff of helpers. A huge fruit cover, being erected as an experiment, was closely inspected. This will accommodate some five hundred trees, and its advantages are that it will be thoroughly proof against the ravages of birds; properly drained, and, what is considered equally important, the roots of the trees will be prevented from contact with the cold clay soil, a concrete bottom having been put in. The result of this experiment will be awaited with much interest in gardening circles.

The conservatory, in which tea was served, was quite a floral bower, the walls being splendidly covered with Ivy and other Geraniums, Fuchsias, and other flowering plants. The beauty of this place was only in consonance with all other parts of the estate, the inspection of which afforded considerable pleasure to those who were privileged to be present. Mr. Nix is an ardent horticulturist and a leading authority on botany, and occupies a prominent position on the Floral Committee of the Royal Horticultural Society.

Mr. Joseph Cheal, voiced the feelings of the company when he said all were very much indebted to Mrs. Nix and Mr. Nix for the kindness they had shown to them that evening. The association was very fortunate in securing a gentleman like Mr. Nix as president, who not only evinced a casual interest in horticulture, but took a deep personal interest in all matters appertaining to the subject, and who had been good enough to show them the choice specimens that grew at Tilgate. None could go round those grounds without learning a great deal, and he proposed a hearty vote of thanks to Mrs. Nix for her generosity in providing tea, and her kindness in allowing them to inspect her beautiful grounds, and to Mr. Nix for the trouble he had taken in the matter.

Mr. Melling seconded the motion, and said the way Mr. Nix described the various plants and flowers in their botanical terms was really wonderful, and showed a rare knowledge of the subject. It had been a great pleasure to all of them to see the beauties of the estate. Mr. Melling, whilst thanking Mrs. and Mr. Nix, also expressed some words of praise to Mr. Neal, the head gardener, who so ably did his work. "In fact," added Mr. Melling, "he is the lieutenant to Mr. Nix in his horticultural researches." The condition of the grounds and gardens did Mr. Neal the greatest credit. (Applause.)

Mr. Nix, in acknowledging the vote of thanks, said it had been a great pleasure to him to show this society of enthusiasts over the estate, and he hoped it would not be the last time they would meet there. He was glad some recognition had been made of the way Mr. Neal conducted his department, where, facetiously added Mr. Nix, "he is not my lieutenant, but my commanding officer." (Laughter.) The Pine wood, where the collection of Conifers were, they had not had time to visit, but he would be glad to conduct them there on some future occasion should they desire to see them. Mr. Nix said his mother, had she been well enough, would have been glad to have met them; she would be pleased to know there had been such a good attendance, and that they had enjoyed themselves. (Applause.) Cheers were then given for Mrs. Nix, Mr. Nix, and Mr. Neal, and the company then departed.

THE "AGRICULTURAL ECONOMIST" for June, 1904, contains noteworthy articles. Mr. Edward Owen Greening, the editor, continues his survey of motors and their influence in Agriculture; Mr. J. Darby ("Agricola" of the "Field") contributes an article on the "Prospect of Arable Crops"; article on "John Chinaman and his Husbandry" is another of the articles.

Societies.

Royal Horticultural, Drill Hall, June 14th.

The hall was again well filled with a variety of excellent, seasonable exhibits. A lecture on "Floral Metamorphosis" was given in the afternoon by Professor G. Henslow, M.A. Over 250 new Fellows were elected, including a large number of titled people.

Fruit and Vegetable Committee.

Present: Mr. Geo. Bunyard (in the chair); with Messrs. Joseph Cheal, J. W. Bates, S. Mortimer, Alex. Dean, H. Markham, Geo. T. Miles, Henry Parr, R. Lewis Castle, F. Q. Lane, Owen Thomas, John Jaques, G. Norman, and James H. Veitch.

Mr. A. A. Falins, Redlands Nurseries, Emsworth, had a cultural commendation for Tomato Redlands. Mr. A. C. Smith, Woodlands Lane, Leatherhead, sent a seedling yellow, netted Melon, named "J. W. Benson." The Earl of Clarendon, The Grove, Walford, obtained a silver Banksian medal for a collection of Royal Sovereign Strawberry.

Orchid Committee.

Present: Mr. Harry J. Veitch (in the chair); with Messrs. J. Gurney Fowler, de B. Crawshay, Francis Wellesley, Walter Cobb, W. A. Bilney, H. T. Pitt, F. W. Ashton, Richard Thwaites, G. F. Moore, T. W. Bond, W. Boxall, H. A. Tracey, W. H. White, H. Little, F. Moon, H. Ballantine, Jeremiah Colman, J. Wilson Potter, and W. H. Young.

Messrs. James Veitch and Sons, Ltd., staged *Cœlogyne Dayana*, *Cattleya Mossiæ Rosalind*, *Spathoglottis aureo-Viellardi*, *Oncidium divaricatum*, *Lælia Digbyano-purpurata*, *Cattleya Reineckiana superba*, *Dendrobium Bensoniæ*, a white segmented form of *L. purpurata* and others.

Sir Frederick Wigan, Bart. (gardener, Mr. W. H. Young), Clare Lawn, East Sheen, had a very excellent display, in which were included *Miltonia vexillaria Memoria G. D. Owen*, *Sobralia macrantha alba*, *Cœlogyne pandurata*, *Cypripedium bellatulum album*, *Ærides Fieldingi*, *Cochlioda Noezliana*, and many beautiful things.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, contributed *Cattleya Mossiæ Warneri*, *C. M. Wagneri*, *Utricularia montana*, *Bulbophyllum Lobbi*, *Dendrobium Lowi*, *Gongora bufonia*, *Oncidium curtum*, *Cypripedium Lawrenceanum*, *Hyeaunum*, *Cœlogyne Lowi*, &c.

Messrs. B. S. Williams and Son, Upper Holloway, N., had *Cattleya Mendeli*, *Vanda suavis*, *Lælia purpurata*, *Cymbidium Lowi*, and other fine subjects.

Messrs. Stanley, Ashton, and Co., Southgate, had *Odontoglossum crispum*, *Oncidium curtum*, *Cattleya Mossiæ aurantiaca*, *Odonto luteo-purpureum*, *Lælia tenebrosa*, and *Lælio-cattleya Canhamiana alba*.

Floral Committee.

Present: Mr. W. Marshall (in the chair); with Messrs. Chas. T. Druery, Geo. Paul, E. T. Cook, H. B. May, R. Dean, James Hudson, Wm. Howe, R. Hooper Pearson, G. Reuthe, C. R. Fielder, Chas. Dixon, John Jennings, J. W. Barr, R. C. Nutcutt, R. M. Wallace, Chas. Jefferies, Chas. E. Pearson, Wm. Cuthbertson, Chas. E. Shea, Geo. Gordon, E. H. Jenkins, Chas. Blick, Edward Mawley, F. Page Roberts, Amos Perry, and Harry Turner.

Messrs. Jas. Veitch and Sons, Ltd., Chelsea, were represented by a group of hybrid *Aquilegias*, which were noteworthy for their bright colours; also some fine spikes of spotted Foxgloves, with a few towering spikes of *Eremurus robustus*. The same firm also contributed a fine table of *Gloxinias*, with a few plants of *Lobelia tenuior*, and *Rehmannia angulata*, relieved with suitable palms and ferns. The *Gloxinias* were remarkably fine, and the plants well developed.

Mr. A. Waterer, Knap Hill Nursery, Woking, exhibited twelve varieties of Rhododendrons, three trusses of each. The exhibit would have been more interesting had the varieties or seedlings been named.

Mr. G. Reuthe, Hardy Plant Nursery, Keston, Kent, staged hardy flowers, the chief feature being the Irises, of which we noted *L'Innocence*, *I. variegata aurea*, *I. Madame Chereau*, *I. aphylla* Mrs. Reuthe, and *I. pallida dalmatica*. *Pæonies* in variety and various rock and alpine plants completed the display.

Mr. Amos Perry, Hardy Plant Farm, Winchmore Hill, made a grand display of hardy flowers, the Oriental Poppies and *Heucheras* forming the leading lines, if one may adopt a draper's term. Among *Papavers* were *Salmon Queen*, *Proserpine*, *Prince of Orange*, *Carmina*, *Queen Alexandra*, *Silver Queen*, *Hesperia*, and *Mahony*. The *Heucheras* included a great many shades, and as Mr. A. Perry introduced the original plants of *H. sanguinea*, he naturally takes a great interest in their development. Mr. L. R. Russell, Richmond, staged a nice table of *Crotons*, all of the decorative size. The *Majesticus*, *Chelsoni*, *Daphne*, *Superba*, *Russelliana*, *Cupid*, *Princess of Wales*, and Mrs. R. Green.

A fine collection of hardy plants came from Mr. M. Prichard,

Christchurch, Hants, which were well arranged. Tall spikes of *Eremurus robustus* formed a pleasing background, while Spanish Irises, *Ixias* in splendid form, and *Pæonies* in variety were the most conspicuous subjects.

Messrs. W. Cutbush and Son, Highgate, formed a pleasing group of hardy flowers on the ground floor. The arrangement consisted of three large bays, the centre being filled with *Liliums* in pots, flanked on either side with *Eremuri*. The latter contained good spikes of *E. himalaicus*, *E. robustus*, and *E. Bungei*. In the groundwork were noted fine blooms of *Inula glandulosa*, *Pyrethrums*, *Incarvillea Delavayi*, *Pæonies*, *Primula japonica*, and *Saxifraga pyramidalis*.

Messrs. R. H. Bath, Ltd., Floral Farms, Wisbech, were represented by a fine display of *Pæonies* and *Pyrethrums*, the flowers well grown and nicely displayed.

Messrs. T. S. Ware, Ltd., Feltham, also had a fine table of hardy flowers. Poppies and *Pæonies* were most conspicuous, though other noteworthy plants were *Campanula bavarica*, *Betonica grandiflora*. A remarkable strain of hybrid *Erigeron aurantiacus*, *Watsonias O'Brieni*, and *W. rosea*, while the *Ostrowskia magnifica* specimens attracted much attention. Mr. R. C. Notcutt, Broughton Nursery, Ipswich, made an attractive display of hardy flowers, in which the hybrid Oriental Poppies attracted most notice. The best were Bobs, Felix, Lady Roscoe, and R. C. Notcutt.

Mr. Chas. Turner, Slough, staged a nice collection of Carnations in pots, which included border and Malmaison varieties. In the former were noted Hildegard, Pagan, Artizan, Lady St. Oswald, Alexandra, Duke of Alva, and Galatea. The Malmaisons were particularly good—Princess of Wales, Princess May, H. J. Jones, and Gemma were excellent, the grass being perfectly healthy throughout.

Aquilegias were sent by Messrs. Dobbie and Co., Rothesay. The colours were tastefully arranged in separate glasses. The strain is undoubtedly a good one, some of the colours being quite unique. Ferns were represented by a large table of *Nephrolepis*, from Mr. H. B. May, Dyson's Lane Nursery, Upper Edmonton, which contained no less than forty-two species and varieties. The plants were chiefly specimens, and arranged most tastefully.

Messrs. W. Bull and Sons, Chelsea, made a display of Spanish Irises in great variety. A few of the best were Sunbeam, Darling, Blanche superbe, alba mascena, Mathilde, and Mrs. Langtry.

Messrs. Kelway and Son, Langport, Somerset, had a fine table of *Pæonies*, *Pyrethrums*, and *Delphiniums*. The *Pæonies* suffered a little from overcrowding, which was unavoidable. At the same time, they made a gorgeous display, the most conspicuous being Coronation, Hallam, Rev. W. Wilks, Lyde, Carnival, and Lady Crichton. The best *Pyrethrums* were Pericles, Desdemona, Aphrodite, Lord Rosebery, and Empress Queen.

Gloxinias came in strong force from Messrs. H. Cannell and Sons, Swanley. The flowers were individually fine, and the plants well grown. The named varieties included Mrs. Watson, Her Majesty, Cannell's Scarlet, Petunia, and Emperor Frederick. Hardy flowers were again staged well by Messrs. G. Jackman and Son, Woking. In this exhibit were noted nice plants of *Cypripedium spectabile*, *Inula grandiflora*, and *Papaver Duke of Teck*. Messrs. Cannell also staged a number of vases containing their hybrid *Aquilegias*. The strain is one of the best, and appears to improve annually.

Mr. James Douglas set up some well-flowered plants of Pink Snowdrift, a large white, with just a trace of colour at the base of the petals. The blooms were very fragrant. Also the hybrid *Dianthus Lady Dixon* in good condition. From Mr. G. J. Morris (gardener, Mr. A. Simmonds) came plants of *Begonia Morrisiana speciosa*, a plant with scarlet pendulous flowers, a cross between *B. Boliviensis* and *Glory of Stanstead*.

From Mr. W. James (gardener, Mr. W. H. Smith), West Dean Park, came twelve specimen plants of Malmaison Carnations. The varieties were Princess of Wales and H. J. Jones, each large and well grown, some of them carrying no less than fifty developed flowers.

Messrs. Barr and Sons, Covent Garden, made single and double *Pæonies* their speciality on this occasion, with a few vases of *Iris hispanica* and a remarkable strain of *Lupines*, which embraced a large variety of colours. The most conspicuous were Rosy Dawn, the Moor, Rosea Magna, Lady Godiva, Alexandre Dumas, and Faust.

Roses.

The display of Roses on this occasion was large and varied, though most of the exhibitors relied on the garden varieties. Mr. Geo. Prince, Longworth, Berks, made a good display. We noted Red Copper Briar, Papillon, Bellefleur, Aglaia, Carmine Pillar, and Harrisoni. The T. and N. varieties were simply grand—Maman Cochet, Mrs. E. Mawley, Niphetos, Comtesse de Nadaillac, Maréchal Niel, Rainbow, and Muriel Grahame are the most conspicuous.

From Messrs. F. Cant and Co., Colchester, came a most effective display of garden Roses, with two boxes of specimen blooms. Taking the former section first, the most striking forms were Marquis of Salisbury, Cecil Brunner, Madame E. Resal,

Irish Glory, Marie Pavie, Camoens, and Irish Modesty. Lady Roberts was also staged in grand condition and colour, while in the specimen blooms were to be noted Mrs. E. Mawley, White Maman Cochet, Souvenir de S. A. Prince, La France, and Madame Antoine Marie.

A nice group of cut garden Roses came from Messrs. Paul and Son, Cheshunt. The bunches were well arranged, and kept wonderfully fresh, the most noteworthy being Blanche Double de Coubert, Marquise de Salisbury, Una, Alister Stella Gray, Lady Battersea, Madame Ravary, and Tea Rambler. The same firm also staged some good *Pæonies*.

Messrs. B. R. Cant and Sons, Colchester, contributed a nice display of garden Roses. The chief forms were Maharajah, Madame Alfred Carrière, Gruss au Teplitz, Leonie Jamesch, Mrs. B. R. Cant, Dr. Grill, and Beauté Inconstante.

Awards.

ORCHID COMMITTEE.—A cultural commendation to Sir Trevor Lawrence, Bart., for *Cypripedium Stonei platyphyllum*, and *Phalaenopsis amabilis*; silver Flora to Messrs. Veitch and Sons, Limited,



Hymenanthera crassifolia.

(See page 516.)

and Stanley, Ashton and Co.; and silver Banksian to Messrs. B. S. Williams and Son and Hugh Low and Co.

FLORAL COMMITTEE.—Silver-gilt Floras to Messrs. J. Veitch and Sons, Chelsea; F. Cant and Co., Colchester; Mr. W. James, West Dean Park, Chichester; and Mr. H. B. May, Upper Edmonton. Silver-gilt Banksians to Messrs. H. Cannell and Sons, Kent; Cutbush and Son, Highgate; and Kelway and Son, Langport. Silver Floras to Mr. J. Prince, Longworth; Mr. A. Perry, Winchmore Hill; Messrs. Paul and Son, Cheshunt; Mr. C. Turner, Slough; Mr. Prichard, Christchurch; Messrs. B. R. Cant and Sons, Colchester; and Barr and Sons, Covent Garden.

Certificates and Awards of Merit.

Begonia Morrisiana speciosa (Mr. G. J. Morris).—This is a finely decorative somewhat tall-growing (2ft) *Begonia*, with scarlet tassel-like, pendant flowers as large as an average double tuberous. The hybrid is the result of a cross between *B. Boliviensis* and *Glory of Stanstead*. A.M. From St. Dunstan's, Hendon.

Cucumber Aristocrat (Mr. S. Mortimer).—The result of a cross between *Unique* and *Sensation*. It is a long Cucumber (16ins), smooth, even, and 2ins in depth. A.M.

Carnation Yellow Gal (Mr. Martin R. Smith).—A pale clear yellow Malmaison variety, softer in colour than any other, yet very

telling. The flowers are large. A.M. From The Warren, Hayes (gardener, Mr. C. Blick.)

Dianthus callalpinus (Mr. C. Reuthe).—Parentage: *D. alpinus* × *D. callizonus*. The flowers are very much like *D. callizonus*, but the colour has more of purple. A.M. From Keston, Kent.

Hesperis matronalis lilacina plena (Lord Aldenham).—A very fine hardy flower, certainly likely to be of great utility for decoration. The flower spikes are dense and long, branching freely, and the colour is rose-lilac, or magenta toned with rose—a bright effective colour. A.M. From Aldenham House (gardener, Mr. E. Beckett.)

Lælio-cattleya × *Martinetti Sunrise*.—Parentage: *Cattleya Mossiæ* × *Lælia tenebrosa*. Flower large and graceful, the segments curving in a half spire, 3 to 4 ins long, and 1 in broad. The petals are 2½ ins broad with a bright purple beam in the centre, the edges bronze-magenta. The lip is fluted but opens well in front, showing a velvety crimson surface, edging off to mauve, with a silvery fringe. A.M.

Pæony Nellie (Kelway & Sons).—A large flowered single with huge orange boss of stamens. The petals are deep rosy-pink, edged silvery shell-pink. A.M.

Pæony, Mrs. French Sheldon (Kelway & Son).—A large, full petalled, white, with soft creamy base to each of the petals which are slightly notched and fringed. The flowers when young are flushed pale blush. A.M.

Rose, Austria striata (Mr. Alfred Tate, Downside, Leatherhead).—A very brilliant decorative Rose, much larger than the Austrian Copper, with glowing golden centre and rich crimson-apricot edging, striated with the same colour. This was called Downside Austrian, but the committee altered the name, as Miss Willmott had grown it under *Austria striata* for years. A.M.

Rose, Maharajah (B. R. Cant and Sons).—One of the finest of the decorative Roses. It is a strong, velvety, rich glowing dark, semi-double velvety crimson, with ample dark-green foliage. The flowers are about 4 in across. The central boss of stamens are golden. This was also certificated at the Temple Rose Show last year. A.M.

National Amateur Gardeners'.

A monthly meeting of the Liverpool branch of this association was held on the 9th inst. in the Common Hall, Hackins Hey, under the presidency of A. W. Ardran, Esq. A pleasing feature was a competitive exhibition of cut blooms and pot plants, the principal prizes for which were awarded to Mesdames Stevenson, Thomas, and Macgregor, and Messrs. Ardran, Dodd, Gaddock, and Robins. Mr. John Stoney, Aigburth, also gave an interesting address to an appreciative audience on "The Cultivation of Carnations—Malmaison and Tree Varieties." The lecturer dealt exhaustively with his subject. After giving his audience some idea of the usefulness and popularity of the Carnation, he described in detail the best methods to adopt to grow them successfully, so as to secure a good supply of cut blooms all the year. Mr. Stoney also demonstrated, by the aid of specimens, the different methods of propagation, introducing layers, cuttings, and ringing. A hearty vote of thanks was accorded to the lecturer for his most interesting and lucid address.

National Fruit Growers' Federation.

A meeting of the council was held at Caxton Hall, Westminster, on Monday, June 13. Mr. F. S. W. Cornwallis, president of the Federation, took the chair, and was supported by Col. C. W. Long, M.P. Messrs. A. Miskin, F. Smith, W. Craze, G. E. Champion, A. H. H. Matthews, W. Idiens, J. Idiens, and A. T. Matthews (secretary), were present. The secretary reported that a resolution had been passed by the local-committee of the Federation at Swanwick, Hants, thanking the South Western Railway Company for the excellent arrangements made by them last year for dealing with their Strawberry crop. This had been forwarded to the general manager of the company, who expressed his pleasure at this recognition of the efficiency of its traffic arrangements, and also the hope that those made for dealing with the present year's heavy crop would prove equally satisfactory.

The Finance Committee presented their report, which was adopted.

The council then discussed the subject of the Departmental Enquiry now proceeding on preferential treatment by railways of foreign produce, and arrangements were made for the collection of evidence.

Another subject of great importance to Kent fruit growers which occupied the attention of the council, was the want of rapid transit for fruit from that county to northern markets through the absence of proper connection of the south-eastern trains with those of the northern lines from London. It was stated that great and unnecessary delays arose from this cause, and it was decided that steps should be immediately taken to endeavour to obtain a remedy for a state of things which so seriously handicaps the fruit growing industry in Kent.

The next meeting was fixed for the first Monday in October.

Grand Yorkshire Gala, June 15th, 16th, 17th.

Though the skies were overcast, and rain had fallen the previous night, the show which opened in Bootham Field, York, yesterday did not fail to draw the usual concourse of visitors, which the numerous excursions bring in from all parts of the surrounding country, and Manchester in particular. The exhibition itself was better than that of last year, and gave general satisfaction to those most capable of judging it. Roses were a goodly feature, and in one class alone (No. 49) there were no less than 360 blooms, most of them of high quality. Orchids, too, were there, and Messrs. Charlesworth, Cypher, and Robson were each well represented. The specimen plants from both J. Cypher and W. Vause need only to be mentioned, and the collections of fruit from Mr. J. H. Goodacre, Mr. R. Dawes, Mr. J. Easter, and others, as well as the vegetables from Mr. E. Bockett and Mr. Horncastle, were of the best that the country produces.

Nor can we omit to specially mention the floral decorations from Messrs. Perkins and Messrs. Artindale, the former leading in every case, so far as we saw, but each displayed wonderfully fine arrangements. Lastly, the trade exhibits contained many interesting subjects, some of which we have drawn attention to. The Rose groups, Gloxinias, Begonias, Calceolarias, Fuchsias, &c., were not specially noteworthy, and as our representative had to leave York by 2.30 p.m. in order to have this report in the present issue, these had mainly to be omitted. In this place we might suggest to the executive committee and to Mr. F. Arey, the secretary, that it would be a great relief to reporters, and a benefit to the exhibitors and the public, were all the exhibits belonging to one class to be placed side by side instead of being interpolated by groups from another section. Exhibitors of hardy flowers have still a great deal to learn ere they stage their assortments to the best effect. As usual, the luncheon was of a hearty and enjoyable nature, attended by the civic dignitaries of the ancient city.

In Class 1, the sum of £58 was given in five prizes. The plant groups are always a chief feature, and five large displays were in competition for the first prize of £20. The groups occupied a frontage of nearly fifty yards, being, of course, set out on the grass. The individual displays were beautiful. Messrs. Artindale and Son, of Sheffield, were awarded the premier position with a meritorious, well-blended, richly coloured group, but undoubtedly we have seen finer efforts in other parts of the country. The group was bold and thoroughly effective, because the plants were strong and large; but in draughty marquees the daintiest, finer arrangements can hardly be expected. Tall, single-stemmed Crotons, with Cocos, Abutilon Savitzi, *Lilium tigrinum*, *L. Harrisoni*, *Kalanchoe flammea*, and *Caladiums* were relied upon for the main features, and the group was broadened and deep in effect. Selaginella and green moss covered the base of the pots, the 4 ft Crotons that formed the prominences being mounded round the base. The space covered was 300 square feet.

The second award (£15) was accorded to the very handsome display from Mr. James Blacker (gardener, Mr. W. Curtis), Thorpe Villas, Selby. The intense crimson and gold colour of a certain *Coleus* here, which was dotted about on the ground-work, was highly effective. Crotons, *Caladiums*, *Rex Begonias*, and Ferns, together with *Ananassa sativa* furnished the chief plants here, while the two end specimen Crotons Prince of Wales, were magnificent, and the orchid pyramid in the centre, flanked by *Abutilon Savitzi*, and assisted in the background by *Hydrangea Hortensia*, &c., was specially good. The plants were very well grown.

Mr. E. B. Faber, M.P. (gardener, Mr. W. Townsend), Belvedere, Harrogate, came third, and if he puts more into his group, and finishes it off to greater perfection, a better place might be recorded next year. The group contained orchids and more general flowering plants than the other two, but it lacked the rich foliar display. The fourth prize (£8) fell to Mr. J. S. Sharpe, Almondbury, Huddersfield, with a very tasty, well-arranged, effective group, much more to our liking than the last. It was varied, rich, tasteful, and well furnished. The fifth and last prize went to Mr. W. Vause, of 53, Warwick Road, Leamington, an exhibitor who so often leads in a class of this sort. It was a skilful effort, though finish was lacking.

Mr. Vause, however, was winner in the smaller group (200 sq. ft.) with an average collection, but tastefully disposed. Each side was relieved by a pyramidal group of plants crowned with palms and Crotons, and surrounded by *Lilium Harrisii*. This Lily with *Caladiums*, *Pandanus Veitchii*, and *Ananassa* furnished the chief colour subjects. The Fairy Orange-moss was dotted along the edge. Mr. J. S. Sharpe was second; Mr. G. Cottam, Alma Gardens, Cottingham, third; and Messrs. Simpson and Son, Selby, fourth, these being the entire exhibitors. The grouping in each case was quite satisfactory, and no one could fail to derive pleasure from the inspection of them.

For nine stove or greenhouse plants, in class 3, open, Messrs. J. Cypher and Son, of Cheltenham, were foremost with their well-known, unexcelled, huge-trained specimens. These comprised *Anthurium Scherzerianum*, *Dracophyllum gracile*, *Erica*



Hardy Fruit Garden.

AMERICAN BLIGHT.—This pest has made a re-appearance on old espaliers, after being treated in the winter. Prompt measures should be taken in similar cases to check the insects, as they breed at this season, and quickly spread from the older neglected trees to young and hitherto clean stock. A forcible washing with the garden engine will destroy a great number, but it is well to supplement this with an insecticide. Any washes containing petroleum must not be used at great strength, or the foliage may be damaged. If time can be found, the worst crevices on the old branches should be touched with paraffin. This will destroy many insects, and the numbers of embryo now hatching.

PEACHES AND NECTARINES.—Lay in by more or less temporary means a sufficient supply of young shoots for carrying the crop next season. These must be in addition to those already fruiting. Remove superfluous growths so far as possible by pinching. Do not allow a number of strong foreright shoots to get away to any great extent, as they not only rob the fruit and weaken flowering portions of the trees, but there is always risk of a check to the whole if these greatly extend, and are then suddenly removed.

MULCHING YOUNG TREES.—Apples in particular that have a number of fruits forming upon them will derive benefit from a mulching of manure. This need not be of a rich nature; strawy material from stables will be found of service in maintaining the soil in an equable state of moisture. We have already this season proved the utility of this practice, as a number of young trees of Cox's and other sorts are swelling a fine crop, with their roots under a heavy dressing; while others, which it was not possible to so treat, have cast many fruits. This advice is particularly applicable to growers having sandy soils to deal with.

STANDARDS.—Many of these are showing promise of enormous crops. The size of the heads prohibits any hope of thinning being carried out to ease the burden of the trees, and the only thing advisable in such cases is to assist them by pouring liquid manure around the stems as far as the branches extend. This is best done after rain, and the sooner the liquid can be applied, the greater will be the benefit resulting. Young recently planted heads should not be allowed to overcrop; by allowing this to occur, growth is sometimes crippled for two or three seasons. The stems of young trees in orchards should be kept clear of grass.

MORELLO CHERRIES.—In regulating the growths of these on walls, allow a fair number to remain and be laid in as opportunities arise, for carrying out the work; but there must be no overcrowding of the shoots that are to provide next year's fruit. We never thin the fruit of these, as if the roots are given generous treatment the trees will carry heavy crops of fruit for a number of years.

WATERING WALL TREES.—In dry weather, see that these do not lack moisture, as they are very apt to do at the foot of walls. Should the ground become hard through being trodden during the successive operations of thinning, dis-budding, &c., loosen the surface soil with a fork before giving water. If this is not done, very little will find its way to the dry soil, but will run over the surface of the border.—J. W., Newent, Glos.

Fruit Forcing.

CUCUMBERS.—When the night temperature can be prevented from falling below 65deg, or even 60deg, artificial heat may be dispensed with, making the most of sun heat by early closing. Look over the plants twice a week, well thinning the old growths, and supply liquid manure occasionally. Syringe early in the afternoon, but damp in the morning and through the day, so as to maintain moisture in the house according to requirement. With the ends of the structures north and south, a slight shade becomes necessary, or from four to five in the afternoon, when there is danger of the foliage being scorched. Pits and frames should be closed about 4 p.m. or earlier, so as to husband the sun's heat, assisting plants in bearing with liquid manure. Remove bad leaves, cut out exhausted and too close growths, and stop young shoots one or two joints beyond the fruit. Where plants are enfeebled in bearing, top-dress with lumpy loam, and layer some of the younger growths at a joint, from which roots will be admitted, and thus strengthen the

succeeding growths. Night coverings will not now be required, but it is necessary to attend to the ventilation early.

VINES IN POTS FOR EARLY FORCING.—Stop the canes when from 6ft to 8ft long, pinching the laterals and sub-laterals to one joint as produced. This applies to cut-backs, and to those from eyes started early and shifted into the fruiting pots. The smaller canes intended for planting need not be given more than 6in or 7in pots, as good fibrous roots are of more importance than luxuriant canes.

HOUSES OF RIPE GRAPES.—Black Hamburgs, and also Buckland Sweetwater, will be better for a slight shade from powerful sun. A double thickness of herring nets will mostly be sufficient shade, and a good spread of foliage will assist the Grapes in keeping their colour. Moderate ventilation at all times, and free in bright weather, will prevent injury from moisture. Keep the laterals fairly under, but a little extension will assist in the retention of the principal leaves, and upon their continuance in health depends the maturity of the buds for the next year's crop.

GRAPES RIPENING.—When the Grapes begin changing colour, admit a little air constantly, with sufficient heat in the pipes to maintain a night temperature of 65deg and 70deg to 75deg by day, with 80deg to 85deg or 90deg through the day from sun heat. Avoid an arid atmosphere, damping occasionally, and do not allow the border to become and remain dry. Vines carrying and ripening heavy crops will be assisted in perfecting them, and storing nutriment for the future, by an application of tepid liquid manure or a top-dressing of fertiliser washed in. A light mulching of dry, spent material will assist the Vines by securing uniform moisture. It is a stagnant atmosphere that does most of the mischief in Grapes spotting and oftentimes in cracking.

THINNING LATE GRAPES.—There must not be any delay in thinning the berries and bunches. Thin well to ensure large and highly finished berries, leaving those of the large-berried varieties, such as Gros Colman, about an inch apart, the oval-berried varieties not requiring so much room as the round ones. All should be thinned so as to allow space for their swelling fully without wedging, and yet be so close when dished that they will retain the form of the bunch. A pound of Grapes per foot run of soil is as many as Vines ordinarily finish well; therefore reduce the bunches so as to give about that weight; and if error is made, let it be on the safe side, as Vines that are overcropped never finish their fruit well, and the Grapes are inferior in quality and keeping properties.

REGULATING THE GROWTHS.—All foliage that can have full exposure to light should be allowed, but when the space is nearly covered with leaves keep the growths closely pinched. The foliage should be rather thinner in the case of white Grapes than in black; this more particularly applies to Muscats, which require high elaboration of the sap to ensure their assuming a rich golden amber colour. Avoid large reductions of foliage at a time; it only tends to cause shanking through the check given to the roots. Keep the growths tied down from the glass, and so prevent scorching. Vines extending must be allowed to make as much lateral growth as practicable, but never permit them to interfere with the principal leaves.

WATERING.—Inside borders must be properly supplied with water, following in the case of Vines carrying a heavy crop, and in vigorous, but not luxuriant, growth, with liquid manure, or a top-dressing of fertiliser washed in and mulched with a little sweetened material to keep the surface moist and attract the roots. Outside borders may only need a light mulch, as the recent rains have made them moist enough; but if dry a proper supply of liquid manure should be given whenever necessary.

TEMPERATURE AND VENTILATION.—All late Grapes thrive in a high temperature, with abundant nourishment at the roots and genial moisture in the atmosphere. Maintain a night temperature of 65deg, and 70deg to 75deg by day in dull weather. Admit air early, and allow a little air at the top of the house constantly, increasing the ventilation with the temperature, advancing from 80deg to 85deg from sun heat, at which, or 90deg, keep through the day, reducing with the declining sun. Close at 85deg, damping the paths then, and again before nightfall. It is well to close for a short time, and then admit a little air, so as to prevent a vitiated atmosphere, and allow of pent-up moisture escaping. Avoid cold draughts or sudden depressions of temperature, as they cause rust and favour the spread of mildew.—G. A., St. Albans, Herts.

The Flower Garden.

CARNATIONS AND PICOTEEES.—As the plants are advancing now to blooming, it is necessary that they be furnished with stakes and ties, or, better still, the wire supports which, having a peculiar twist towards the top, are adapted for holding the stems securely without having recourse to tying. Green fly attacks the plants about this time, but it may be

destroyed by dustings of tobacco powder or syringing with tobacco water. Afterwards cleanse with clear water. During dry, hot weather the swelling and developing of the buds will be greatly accelerated by copiously watering, and the soil between the plants, if trodden down hard, should be loosened. Finer blooms may be had by thinning the buds, leaving three buds as a rule on a stem, weakly plants only having one. There is a tendency among Carnation buds to burst sideways or irregularly. An indiarubber ring placed round them as they begin to swell will prevent this.

HOLLYHOCKS AND DAHLIAS.—The rapid growth of the stems of these makes it imperative that supports be given them without delay. The opportunity should be taken to thin out the growths of Dahlias, several strong stems being better than a mass of weakly growths.

DIVIDING POLYANTHUSES AND PRIMROSES.—The dividing up and replanting of these is best effected early, so that they may have a good chance of forming strong plants by autumn. Each crown will make a plant, hence if necessary divide to that extent. Remove coarse leaves and those yellowing, and cut back the roots freely. Prepare a piece of ground by digging deeply, incorporating some decayed manure. Form a trench about 6in deep, and place the divisions 6in apart along it, spreading out the roots evenly. Cover with soil, make firm, and water, finishing off with dry soil. This will serve to prevent evaporation, and quickly establish them.

HERBACEOUS BORDERS.—Almost constant attention is required now by the plants. Species going out of flower should have the withered blooms and stems removed, also any yellow leaves. Tall growing species are safest from injury if neatly staked, not, however, crowding the growths together. Rain causes them to be very heavy, and the wind then playing upon them snaps many valuable shoots off at the base. Those requiring attention at once are Phloxes, Pentstemons, Campanulas, Aquilegias, Delphiniums. Hoe over the ground to destroy seedling weeds. Weeds of larger growth should be forked up, and collected for disposal on the rubbish heap.

SWEET PEAS.—The earliest rows will shortly be in flower, and ought to receive a liberal mulching of manure on each side the rows. Assist and strengthen the growth of successional rows by due applications of water and liquid manure, though the latter is, as a rule, best applied when flowering commences. The latter rows or clumps must have the sticks fixed to them in time before the growths spread about. In order to prolong the flowering season, the seed pods should be picked off regularly and cleanly as soon as the flowers are over.—E. D. S., Gravesend.

Entomological Notes.

Daddy-long-legs.

One of the commonest summer insects is the Crane fly (*Tipula oleracea*), which is known to practically everybody. The grubs or larvæ, however, are not so frequently seen, and there-



Daddy-long-legs or Crane fly.

fore are not so well known. They do enormous damage to the roots of grasses in permanent pastures, and they also attack young Lettuces, Beans, Potatoes, and the Cabbage family, consequently the insects should be destroyed to prevent the laying of eggs. Trapping by means of sliced Carrots, Potatoes, or Parsnip is recommended for gardens, and heavy rolling for pastures. A weak solution of gas liquor, with lime added, is said to be a remedy, applied through a watering pot.

THE BEE-KEEPER.

Subjugating and Manipulating Bees.

This is a branch of apiculture which opens up a very wide field of interesting and profitable enquiry, but owing to bees and bee-keeping having been mixed up with super-naturalism a state of clearness respecting the handling of these wonderful insects has not in many cases yet been arrived at. There is scarcely an apiarist who has not met with some of his earliest disillusionments when handling and controlling his first colony, and in view of the fact that at one period of the year the whole of the population of a hive is renewed in six weeks, the time-worn theory that the bees get accustomed to their master stands out therefore as a startling fallacy. Close observers of the habits of insects must have noticed that most hymenoptera (membranous winged) have a great dislike, if not a positive fear, of any kind of pungent smoke.

The Rev. L. L. Langstroth, the father of modern bee-keeping, however, was the first to call attention to the fact that bees were afraid of smoke, and to put it to practical use. One of his axioms, which ought to be as familiar to the apiarist as the letters of the alphabet, is as follows:—"Bees when frightened by smoke or by drumming on their hives fill themselves with honey, and lose all disposition to sting unless they are hurt." It is manifest, therefore, from this that it is only necessary to take proper measures to subdue them, and they may be rendered almost harmless. To attain this object a variety of methods have been tried which have been more or less successful. The excessive use of smoke, however, must be guarded against, as when administered beyond a certain point, instead of subduing it irritates the bees and aggravates them.

The tendency of amateurs is to use the smoker with unnecessary frequency; and while on this point it is also worthy of mention that in dealing with swarms, smoke is not essential, except as a means of hastening their movements when hiving rapidly. All that is needed is to avoid crushing any, and carefulness in handling. A sprinkling of water will make them cluster more compactly, and will facilitate the operation of shaking them out upon the floorboard of the hive. The reason of their disinclination to sting is that they are filled with sweets, are excited, and homeless. This combination makes them good tempered, and almost listless, and while in this condition there is consequently little or no difficulty in manipulating them in any way. As timidity may foster a feeling of insecurity, before commencing operations the apiarist should protect his face by a veil, hemmed to fit the hat tightly at the top, and to tuck underneath the coat collar at the bottom. Black net is preferable for this purpose, as white is an obstruction of the vision. Gloves will be found a hindrance, especially in delicate operations, but if desired, kid are better than indiarubber, the sting seldom penetrating to the anthers. A caution is necessary with respect to woollen articles for the protection of the hands. Bees will apparently, without the slightest provocation, attack hands encased in woollen gloves, and as they are always a cause of irritation they should be eschewed. As an intimidator, carbolic cloth or smoke is used by the most prominent and successful apiarists.

One of the best patterns of a smoker is that known as the "Bingham," which, if properly charged with a roll of corduroy, rags, or brown paper (the latter well crumpled to allow a free passage of air), will, if kept nozzle upwards, keep alight until all the fuel is consumed. If placed flat it will go out. Some kinds of smokers do not burn as freely as desired, but go out unless they are used at short intervals. When this is the case it will be found to burn better if the rag or paper before use is dipped in a solution of 4oz of saltpetre to 1 quart of water. Immediately the fuel is dry it is ready for use.

(To be continued.)

Swarming v. Swarm Prevention.

It is a well known fact amongst apiarists that indiscriminate swarming is detrimental when a heavy crop of honey is desired. It is, however, argued, that if a young, fertile queen is given to the old and queenless colony, so that the work of ovipositing is not hindered, and brood production continues, there will be two strong colonies instead of one for a late honey flow when it commences, which will gather double the harvest. This is admittedly very plausible, but the arguments for and against swarming might be greatly amplified, and if the production of honey is the sole object, and the bee-keeper has not too much time to attend to swarms, it is certainly very much better to prevent the bees coming off by controlling the swarming impulse.

Should, however, a colony become unusually powerful very early in the year, when there is little or no prospect of a honey flow for a month or more, as will sometimes occur, the chances are, that if, instead of waiting for natural swarming to take

place, an artificial swarm is made, it will be able to support itself, produce brood, and it will be in almost as good a condition as the original colony in time for the harvest which is anticipated later. At any rate, it is much better, safer, and more certain in such cases to swarm artificially. Should the weather after the division be wet or cold, and the bees consequently unable to fly abroad, both the parent stock and the swarm would require feeding, and should be carefully covered up and protected to secure the best results.

When the harvest can be depended upon, there is no doubt that swarming and building up is more profitable, as there is always the additional stock to be considered as an asset, and it is almost impossible to control such forward colonies if the weather is indifferent for any length of time, as it creates a desire to swarm, which is annoying. It is better to stimulate such a stock, in fact to do just the opposite for preventing swarms, and afterwards divide, or wait for the swarm to come off naturally. When a stock has the swarming fever it affects the bees in a peculiar manner, as, even if the queen is confined to the hive, they will issue repeatedly, which is almost as great a nuisance, and as long as it continues they will not work properly; and it therefore follows that the bee-keeper should keep them free from such influences if possible, if not, he may lose a great part of his crop.

When once a colony has acquired the swarming impulse, there is no effectual method of preventing them coming off except by removing the queen, and afterwards cutting out queen cells as they appear, which really means keeping the hive queenless. Colonies will not swarm without queens, and honey gluts seldom continue for more than a fortnight, therefore the loss of brood during that period would easily be replaced by a little attention in the autumn. This plan would liberate more bees for gathering honey, and the absence of the queen would reduce the production of brood, which would result in a corresponding decrease in the quantity of honey consumed for brood food, so that it would have its compensations.

The more observant will have noticed that some stocks which have swarmed do better than those which have not, and are apt to conclude that swarming must therefore be beneficial; but this is as a rule due to the old colony being headed by a young queen, while the one in possession of those which have not swarmed may be old and worthless. The only thing which may rank as a benefit is that the old queens get replaced at swarming time. As is no doubt apparent, success or failure depends upon whether the bees can be got into supering condition again in due course, and this rests on the discretion of the bee-keeper, otherwise the best part of the season will be gone. The greatest objection to natural swarming is that one of the many conditions essential to it unfortunately happens to be a glut of honey, and the swarms then leave just at the most inopportune moment for the bee-keeper, who loses some of the results of their labour unless they are well managed.—E. E., Sandbach.

Miscellaneous and Trade Notes.

Messrs. Cannell's New Branch Nursery.

Messrs. H. Cannell and Sons, of Swanley, have lately taken over an extra branch nursery known as Lane's Nurseries, Cockmannings, St. Mary Cray, Kent.

Meteorological Observations at Wisley, Surrey.

Taken in the Royal Horticultural Society's Gardens—height above sea level, 150 feet.

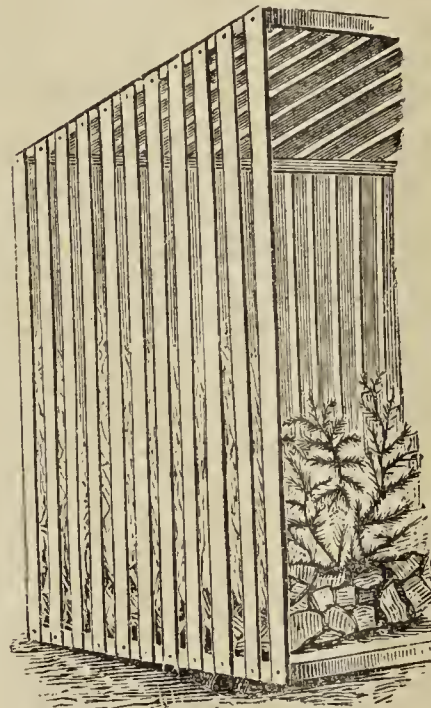
Date.	Temperature of the Air.				Lowest Temperature on Grass.	Temperature of the Soil. At 9 A.M.			Rain.	Wind.		Sunshine.
	At 9 A.M.		Day.	Night		At 1-ft. deep	At 2-ft. deep	At 4-ft. deep		Direction.	Total velocity for the 24 hours ending 9 a.m.	
1904.	Dry Bulb.	Wet Bulb.	Highest.	Lowest.								
June.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Ins.		Miles.	h. m.
Sun. 5	58	54	70	48	45	59	57	55	—	N.E.	181	12 54
Mon. 6	56	52	70	47	42	59	58	54	—	N.E.	217	7 54
Tues. 7	55	50	65	50	48	59	58	54	—	E.	229	9 12
Wed. 8	51	48	62	47	44	58	53	55	—	N.E.	201	3 26
Thurs. 9	52	47	58	47	45	57	57	55	0.11	N.E.	87	1 51
Fri. 10	53	56	63	51	48	57	57	55	—	N.E.	84	0 21
Sat. 11	54	52	59	50	46	57	57	55	—	N.	86	—
MEANS	55	51	64	49	45	58	57	55	Total 0.11	—	155	5 8



TO CORRESPONDENTS
 **All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

SHADE SCREEN FOR FERNS (South-Western).—It is seldom that no shaded, sheltered corners can be found wherein to plant the finer ferns, but we suggest a screen of the nature here shown for your acceptance. The screen can be covered lightly by summer creepers if you care.

WATER SUPPLY—SCHIZANTHUS WISETONENSIS—STREPTOCARPUS (Kittie).—(1) Canvas hose is not a suitable article for conveying water where the pressure is such as to raise the water to the height of buildings, though this could be regulated by the supply tap.



A shade screen for ferns.

Indiarubber is much better, and cheaper in the end.—(2) The seed of the Schizanthus should be sown in August or September, potting off the seedlings singly when large enough to handle, and the young plants grown on singly in a frame or house where frost is merely excluded. The plants, however, should have a position near the glass, and not be overwatered. They may be grown to flower in 7in or 8in pots during early spring, when the plants become in a greenhouse temperature a mass of elegant foliage and curiously shaped flowers. A rich soil is advisable when the plants are shifted into the flowering pots, such as turfy loam, with a third of leaf mould or thoroughly decayed manure, and a sixth of sharp sand, adding a little broken charcoal, and providing good drainage.—(3) Streptocarpus are easily raised from seed, but for this purpose a warm greenhouse or stove is required. The seed may be sown in February, in well-drained pots or pans of finely sifted soil, composed of peat, leaf mould, and sand in about equal proportions. After the seeds are thinly sown, and only very lightly covered with soil, they should be carefully watered, placed in a temperature of about 70deg, and kept shaded. On the appearance of the seedlings, a sharp look-out must be kept, to prevent them damping, and as soon as large enough, they should be pricked off, about 1in apart, in other pots of similar soil, and, in due course, potted into single ones. Seedlings form good plants and flower the same season if sown early and afterwards grown on without check, being shaded from bright sunshine, and in a moist, warm temperature. When in flower, they are singularly fine for conservatory decoration.

BOOK ON FLORAL DECORATING (W. W., Bangor).—No present book on this subject exists, which is one of the wonders of the world, seeing that the inquiries for such a book are legion, and the subject is quite an easy one to write upon, especially when aided by photographs.

PALM WITH SCALE INSECTS (W. W.).—There are two species of scale insect upon the palm leaf you have sent to me: (a) The long black one is "the black thread scale (Ischnaspis filiformis). (b) The short, pale yellow one is the palm or Camellia scale (Fiorinia fioriniae). Both insects are most pernicious pests, and it is only by repeated "washings" that they can be destroyed.—ROBT. NEWSTEAD.

ROSES ATTACKED BY SMALL WHITE WORM (B. M., Aberdeen).—Try syringing the bushes either at evening or morning with the following:—Take 4oz. of quassia chips, and boil them ten minutes in a gallon of water; then strain it, and while cooling, dissolve in it 4oz of softsoap. To this add another gallon or two of water. It is then ready for use.

BOOK ON PROPAGATING PLANTS (S. D.).—Apply to Macmillan and Co., publishers, London, who have a book on this subject by L. H. Bailey.

SYRINGING VINES (S. D.).—In the house where the fruit is about all set, and there is no fire heat, it is not good practice to syringe the Vines at all, as, unless the water is very clear and soft, a deposit is formed on the berries that greatly militates against their appearance when ripe. The recommendation to syringe at closing time is sound inasmuch as it applies to damping or syringing all the surfaces in the house other than the Vines, and thus according to the Vines a moist, genial atmosphere, without the disadvantage of syringing the Vines, for reason before given. The Vines, however, will not suffer, as a rule, on the score of scorching if syringed at 4 p.m., unless the weather be unusually bright; then the syringing may be practised an hour later, it being always desirable to have the foliage dry before nightfall. Scorching mostly occurs in the morning, through the sun acting powerfully on the leaves whilst they are damp, air not being given soon enough to expel the moisture and allow the foliage to heat equally with the surrounding atmosphere.

DAHLIAS (J. F.).—Good stout stakes, 3½ ft to 4 ft long, are necessary for plants that are to grow erectly. When others are desired to be pegged down, the matter should be attended to while the plants are still young and easily bent.



Dahlia pegged down.



Dahlia staked

TREATMENT OF MANURE AND HOOV PARINGS FROM A BLACKSMITH'S SHOP (W. S.).—The hoof parings along with the manure, should be placed in a heap of, say, five or six barrowloads, and a little sulphate of lime or potash be thrown over it, protecting from wet. If wood ashes are at command, cover the heap all over with them, or incorporate about an equal amount of wood ashes as of manure and hoof parings through the heap, and in either case a good manure will be formed for Vines and fruit trees, mixing well before use. Material placed in a heap now will be fit for use in autumn.

PEARS FOR EXAMINATION (L. B. W.).—The small Pears are affected by the larvæ or maggots of the Pear gall gnat (*Diplosis pyrivora*). This is a small, gnat-like greyish fly, having a slender body, long legs, and a long ovipositor projecting from the end of the abdomen. These flies appear in the spring, even before the blossoms open, and continue about ten days. As soon as the blossoms open sufficiently for the insect to insert its ovipositor, the eggs—often a dozen or more in number—are deposited inside the blossom envelopes. Three or four days after the depositing of the eggs these hatch into little maggots, which enter the ovary of the fruit, where they feed upon the growing tissues, gnawing and rasping it in such a manner as to destroy the core and seeds; and cause the fruits to become dwarfed and deformed. They remain in the fruit until it cracks or decays, then they emerge and drop to the ground, entering the soil an inch or two, where, somewhat later, they make oval cocoons of silk, mixed with particles of earth, and in these remain apparently unchanged until the following spring, when they become pupæ, and shortly afterwards again change into flies. As regards repression, all infested fruit should be gathered whilst the maggots are in them and burned. Then, when the maggots leave the fruit, which takes place about the middle of June, later in backward seasons, supply a dressing of kainit beneath the trees, and extending to some distance beyond the spread of the branches, 10 cwt. per acre, 7 lb per rod. The salt will be dissolved by the soil moisture, and the solution, coming into contact with the naked larvæ, destroys them. Possibly spraying the trees with tar water just before the blossoms expand would prevent the insects depositing their eggs in the blossom, while placing pieces of tin or cardboard smeared with a sticky substance in the forks of the twigs would no doubt capture a great many of the flies.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (S. D.).—*Epiphyllum*. It is propagated by means of cuttings, or by grafting upon either *Cereus speciosissimus* or *Pereskia aculeata*. (Salop).—*Diervilla* (or *Weigela*) *rosea*. (Medico).—1, *Albica*; 5, *Sansevieria javanica*; 6, *Cyrtomium falcatum*, the Holly Fern; 7, *Pteris cretica*. You sent no other numbers.



The Difficulties of the Dairyman.

From what point are we to look at this subject? because, as in countless other cases, there are several points of view. We all believe that the life of the dairyman is by no means a bed of roses, and, poetical as milk and the milkmaid may be, there is a great deal of very stern fact to be faced. In the first place, we think we shall have our readers with us when we say that successful dairy work is dependent in a great measure on situation, that is, the nature of the land and the distance from a market. It is still the custom here to turn the cows out to graze in summer, and to get good results, it is absolutely necessary there should be something, and that something of very good, succulent quality, to graze.

For the present we are letting alone the question of hand or added food. There are many pastures that in May present truly a very deceptive appearance. From that appearance an outsider would gather that no reasonable cow could wish for anything better from that time forth till the season when she seeks her winter quarters in the warm stable. Like the wheat of the parable, that grew and flourished for a time, so is that pasture. A fortnight of regular grazing will turn it from a fruitful field into a desert, only to spring again if left completely alone and watered with the genial rains and warmed by the sun. Other land, indeed, will last out for a longer period, but that grass is in the minority which will last out well the whole season. (N.B.—When such is found, the price paid is something pretty big.) The farmer must, as a rule, have something more than his grass to fall back upon if he wishes to make the best of his milkers. We believe that more returns can be got out of a cow by stall feeding, than what she would otherwise cut for herself; but, of course, this adds very considerably to the labour, and therefore to the expense, as the manure will have to be removed, the stalls kept clean, in addition to the carriage and cutting of green crops. This, of course, is the manner of feeding in large towns, such as Edinburgh, where the animals are kept in close quarters from the time they come in full of milk, to the hour they leave fattened for the butcher.

An unusually dry summer may entirely upset all the dairyman's arrangements, and cause such inroads on his pocket by forcing him to supply so much expensive bought food, that his profits for the season may be put down as nil. An unusually wet or cold season will also affect the milk supply adversely, for although cows must have a large amount of water, there is a possibility of getting too much, and so bringing down the milk quality to a dangerously low point; so low, that if the inspector should pass that way, there might be a danger of a report of "added water and abstracted fat," which is about as unpleasant a thing as the poor dairyman can face. Such weather as we are enjoying (?) just now is not calculated to improve the milk supply: Wind N.E., and strong, and with apparently little chance of a change; everything very dry, most unpleasant to man, and most adverse to a cow in full milk.

There is another source of trouble with which the dairyman has to contend. It is quite possible, and very probable, that his water supply is not of the best quality, and that the quantity is scanty. Full and pure should be his store, both for the sake of the cows, for the proper cooling of the lacteal fluid, and also that there may be no hindrance to cleanliness in all things that concern the milk.

Some people may say that distance, provided a man is near a station, is now no real impediment; neither is it in a measure, for trains run often, and at high speed; but for all that every extra mile adds to the cost, and profits are often so small that infinitesimal fractions have to be reckoned with. We have said nothing yet about the cows themselves, the difficulty in getting together a good level herd—cows that are just in their prime (someone must have as heifers). As for the older cows, at the very hour they cease to be profitable they can still be fattened for the butcher, and it is a mistake to delay that day too long. Much care is needed in the building up of a good herd. We hear men talk lightly of eliminating unprofitable beasts and filling their places with first-rate animals; but, easy as this seems on paper, it is not so easy to accomplish in reality. One is apt to wish to give a well-bred cow another trial, and see what she will do after her next calf, and so forth, fearing that by a change we shall really be no better off. If a young man begins on the right lines, and has deep milking cows,

employs bulls from deep milking mothers, he will always have a supply of likely heifers to fill the places of the aged, and also a few likely bulls for sale; but this sort of thing is not done in a day. It is almost beyond the means of the ordinary dairyman. True, he might often do better than he does, but we are not always alive to all his difficulties and dangers. For instance, once let him get contagious abortion established, he may get such a knock back that he might as well have an attack of rinderpest. Abortion may be introduced to his premises by the very cow that he has paid a high figure for with the view of improving his herd. A new bull may be equally a source of danger. As for milk fence, we are of opinion that there need not be much fear of it if proper and suitable precautions are taken.

We do not want to find fault with the Milk Bill; but there are times when it presses on the individual man. We believe it to be a praiseworthy attempt to protect the public from fraud; but the difficulty is that the provisions of the Bill draw a hard and fast line. There is such a thing as the law of averages; and we think it would be fairer not to condemn a man as a rogue just because at one particular milking the constituents of the fluid are below par, but to take the average, say, for a week, and we would guarantee that in ninety-nine cases out of a hundred it would be proved that the public in the week's total were getting above, rather than below, their proper quantity of butter fat and solids. We read lately of one large town where the analyst averred that in ninety cases out of one hundred the milk samples brought under his notice were above the requirements of the Act. We do think there are circumstances where the dairyman is open to a little blame. We think he should be at the trouble of testing periodically, and separately, the milk of each cow, and if he finds one or more constant offenders, that milk should certainly not be mixed with that intended for sale. If he made a practice of this he might save himself unpleasant and expensive experiences before those who sit in the seats of the mighty. A man now is not committed for wilful misdoing; his sins of omission are counted as equally gross as the sins of commission.

We see that in one northern county there is an association formed to protect the interest of the dairyman: to investigate fully any cases where the law unduly and hardly affects a member, and also to keep the members fully alive to the fact that their salvation in a great measure lies in their own hands. A small dairyman has little chance to successfully contest any case before the public analyst and a bench of magistrates. An association is more powerful, and more likely to be heard. We fear in many cases the dairyman suffers by reason of causes over which he has not the slightest control. When once the milk is delivered at the station his control ceases, and from numberless cases which are continually arising, there is a great question as to what *does* happen to the milk in course of transit. It certainly is not of the same quality when it reaches the retail customers as it was when it left the cowhouse. The quantity is not always there, and if the measure is full, quality is not up to concert pitch. We observed a gentleman telling the tale of his milk experience at the late Dairy Conference held at Nottingham, how, when his cans were opened at the far end, a pipe has been found, and also tea-leaves. Articles of this sort cannot escape detection, but admixture of water possibly might pass nine times out of ten. If at the tenth time the inspector should be about, what then? There is no doubt of it that locked or sealed cans should be the rule, not the exception. Of course, the lock must not be a common one, but there are plenty of good locks that are not easily opened, or, at any rate, would leave marks of any tampering with.

We do not complain one moment as to the strict precautions which are taken (wholly reasonable) to prevent milk coming from any farm or dairy where disease exists. The public have a right to such safeguard; but what we do object to is, that foreign milk can be landed and sold and no questions asked. Any filthy, dirty disease may exist in that place where the milk is produced and handled, and the foreigner can with immunity send it off to us without let or hindrance. Personally, we do not think the foreign milk trade will, in our lifetime, at least, assume any great proportions; but still, there is a danger to the public, and an injustice to the British dairyman.

Work on the Home Farm.

Very good progress is being made with farm work. Since our last, the weather has been fine, but rather cold. We have heard rumours of frost in the early morning, but are thankful to say we slept too well to notice it personally. At any rate, we can vouch for the fact that vegetation has shown no sign of a chill.

We are through with swede drilling, and shall put in at once the greater part of our common turnips, so as to leave ourselves free for the potato earthing and clover mowing. Potatoes of the older sorts grown in the ordinary way are looking well. We are skerrying them and hand-hoeing, but there are not many

weeds, and the work is quickly done. We wish that the same might be said with regard to the barley crops, for they are exceedingly full of thistles, and very difficult to clean.

As we have observed, potatoes look well, but we must except the sprout-grown plants of new kinds, which are rather plentiful hereabouts. The greater part of them present a very sickly appearance; but we have seen some nice plots of Northern Star and Duchess of Cornwall. Old potatoes are unsaleable; 60s. per ton is now asked for the best, but there are no offers. We never knew a June when the supply of old potatoes was so large as now.

We shall earth the potatoes up as quickly as they come ready. We have kept the soil light, and there is plenty to earth with, a little dry perhaps, but potatoes prefer that to a wet blanket. Clover has grown very well since the last warm rains, and as a rule will be very heavy. It will not be in full hob for a fortnight; but we shall cut it before long, as we are anxious to get an early second crop for the lambs in August. Cow-grass should always be cut early, or the stems will be like hard sticks.

The wool trade is very promising. A few clips have been sold, weighed up, and gone into consumption. Buyers are so keen that they ask few questions. All they want is wool of some kind. It has been rather cold lately for the young mangolds, and there has been a lot of weeding to do; but mangolds always are expensive in labour. As soon as the weeds are removed, a dressing of nitrate of soda or sulphate of ammonia, 150lb to 200lb per acre, will have a wonderful effect, and give a handsome return.

Forward cabbages are hearting well, and will be a heavy crop. Spring sown ones are rather backward, and would receive great benefit from a good dressing of soot.

Board of Agriculture and Fisheries.

A return of market prices of fat and store stock, dairy cattle, meat, provisions, fruit, vegetables, hay, and straw at certain representative markets in Great Britain is issued every Wednesday by the Board of Agriculture and Fisheries, containing information for the week ending with the previous Saturday, price one penny per copy, to be obtained, either directly or through any bookseller, from Eyre and Spottiswoode, East Harding Street, E.C.; Oliver and Boyd, Edinburgh; or E. Ponsonby, 116, Grafton Street, Dublin. A copy will be sent regularly, post free, as issued, by the publishers, for three, six, or twelve months, on payment of a subscription at the rate of 6s. 6d. per annum.

Agricultural Organisation.

The third annual report of the Agricultural Organisation Society of Great Britain just issued, contains within its 80 pages a summary of the progress of the movement during 1903. A glance at its table of contents shows that the society takes a practical interest in all matters affecting the social and economic welfare of the inhabitants of the rural districts. Though farming by co-operative societies does not make any advance in this country, the various forms of co-operation advocated and promoted by the A.O.S. are evidently more successful as shown by statistics. The report contains many practical details of the working of the affiliated societies, together with illustrations of the co-operative dairies at Long Bennington, Lincolnshire, the Lampeter Dairy, S. Wales, the Nidderdale Dairy, and the Vicar's Farm Bottled Milk Society, Worcestershire. Some interesting details are also included regarding the Co-operative Factory at Sealford, in Leicestershire, which has been established exclusively for the production of Stilton cheese, and represents the only real attempt made by Leicestershire farmers to combine in competition with the proprietary factories of that county. A profit has been made on the season's trading, during which about £2,000 worth of cheeses have been sold. The most striking progress in the adoption of co-operative methods during 1903 took place in Wales, where the number of co-operative societies rose in number from 10 to 20. One recently-formed society in the Principality is mentioned, which has already a turnover of £100 per week, and has considerably reduced the prices of agricultural requirements, which obtained in the district previous to its establishment. It is anticipated that when the Welsh societies have carried out their scheme of federation, the good results already achieved will even be improved upon. The income last year consisted of subscriptions to the amount of £700, and £990 in donations. The committee give their reasons for appealing for more substantial support in view of the great importance of the movement, not only to the agricultural interest, but also to the nation at large. They give figures explaining that to adequately carry on their work an income of at least £3,000 per annum is immediately required. A meeting of the society to give greater publicity to its work, aims, and objects, will be held (by kind permission of Mr. Julius Wernher), at Bath House, Piccadilly, on Monday, June 20, at 2.30 p.m., which will be presided over by the Earl of Coventry.

PERGOLAS.

Pamphlet, which is just published, and contains views of above, Hints on Construction, Descriptive and Illustrated Price List of the most suitable plants for same, &c., will be sent Post Free to applicants interested in this charming and fashionable style of garden adornment.

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Mrs. M. R. Smith, bright rose pink, 2/6
Mrs. Trelawney, dark salmon; very fine, 2/6
Prime Minister, bright scarlet; choice, 1/6
Princess May, rich deep rose; fine, 1/6
Princess of Wales, deep pink; sweetly scented, 1/6
Souv. de la Malmaison, blush white, 1/6
The Churchwarden, bright crimson scarlet, 1/6
Trumpeter, dark crimson; sweet scent, 1/6

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Journal of Horticulture.

THURSDAY, JUNE 23, 1904.

Fruit Bearers.



OUR trees, like ourselves, want a good start in life. The young gardener with grit can, of course, worry out of uncongenial surroundings; but the tree suffers on for want of a helping hand, till a few short years make it a standing reproach, and a silent yet eloquent witness of poverty and neglect. Especially is this the case with wall trees; the first

year or two makes them or mars them, and surely garden walls are too valuable an asset to keep out of the calculation. They, too, provide the keynote for a critical eye to see at a glance how matters are all round, and when one sees, as we lately saw, Peaches, Pears, and Plums crippled in their youth for want of a little timely assistance, the inference is drawn that things generally are out of tune, as they proved to be in the case noticed. Hence our text from the acts of some peregrinating apostles (the particular place is noted for its frequent changes) of gardening on which to hang a short homily.

A word on planting, although out of season, must be included. The preparation of the site is too simple to allow of excuses for jobbing a tree in anyhow. Costly preparations that some can afford and do, in the way of subterranean paving and special composts, are not commendable to all, and the frequently cropped and enriched border we find good enough. With a trenching 2ft deep, over a given area for each tree of, say, 25 superficial feet (5ft each way), and the addition of a heaped barrowload of old lime rubble (old mortar) incorporated with the soil, we have an inexpensive process that none could grudge, especially as it is autumn work when things are easy. For the good start, however, we like to give a little coaxing in the way of special compost, which may consist of old potting soil, or other material in which leaf mould is a constituent. Into this the roots are spread out and settled firm with a good watering, the young tree being loosely secured to the wall until soil sinkage allows permanent nailing up, at which

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READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

time, just prior to growth, a shortening of the leading shoots lays the foundation for the principal branches.

For all round purposes, economy of time, and simplicity of care and keep, fan training is preferable to the horizontal method. Cordon culture there is no need to disparage, but as it is high art and comparatively costly, it appeals not to all. For this work, and indeed for all work, in which a life-sized model may be wanting, it is good for the novice to have a clearly defined ideal in his mind for working up to; it simplifies matters and prevents mistakes. Fan training if easy is no higgledy-piggledy work; it is indeed a work of art, if a simple one, and a good idea of what it should be may be found in a lady's fan fully expanded, when it forms a complete half-circle. The ribs will then represent the radiations of a fan-trained tree in perfection, and these may be modified in practice as may be expedient. To attain this, disbudding in the earlier stages is indispensable, but as well as providing for extension the trainer must not overlook the retention of sufficient shoots for fruit spurs, and properly furnish the tree from its base whilst conserving its energy for development.

In a season like the present (in our local experience) it is essentially necessary that newly planted trees should have extra attention paid to them by an occasional soaking of water, a good mulching, and a frequent douche from the garden engine to promote active and clean growth. We have been accused of being too kind to young trees, and plead guilty, for our coaxing has not infrequently resulted in youthful vigour to a fault. This we can and do forgive, bearing in mind the stunted starvelings which perennially disgrace more than one garden within our own area of observation, for which, in spite of some spasmodic efforts to remedy, there is no cure but the fire.

It is both grateful and comforting to have to deal with this ultra vigour by autumn lifting at about the fourth year from planting, although in some cases cropping can be attained and maintained sufficient to keep it in check. However, careful lifting, and removal to a fresh site may possibly give quick and unqualified satisfaction, and anything afterwards in the way of restriction or of stimulation may result from opening up a trench to come in touch with the roots, and root-pruning if necessary, or feeding with some stimulating compost if desirable. Summer pruning if promptly done, is an aid to cleanliness by the removal of any aphid-crippled tops, and a conservation of the tree's energy. Much of this necessary work, unfortunately, is often left till too late to derive the full benefits of the operation, if, indeed, the delay does not store up troubles for the future. In any case, it is a mark of mediocrity that the smart man will not tolerate.

"Why do not Peaches succeed outside as they did formerly?" is a question which now and again crops up. The answer to it, in our opinion, which of course may not be of much value, but is probably worth considering, is, if not the old story of neglect, at least the want of that attention formerly accorded to the esteemed fruit; and that given now, even in this degenerate age, the same care bestowed on them under glass, with temporary protection from spring frosts, we may grow the Peach to the same perfection our forefathers gloried in. Cheapened glass has, of course, been a primary factor in abolishing outside Peach culture, but that fact does not affect those who are yet concerned in its welfare as a wall tree.

As remarked, walls are too valuable an asset in garden economy for waste to be tolerated, and every superficial foot should contribute its quota of high quality to the commissariat. For the cold aspects Morello Cherries, Victoria Plums, and vertically trained Currants, to prolong their own particular season, commend themselves. In giving prominence to this leading phase of fruit culture it is not forgotten that bush fruits, too, not rarely suffer in infancy to an extent that their after life of usefulness and beauty is sadly impaired, and to these the same thoughts and principles apply. There is an old saying that poverty and neglect sharpen the scythe of Time, and in no case, probably, is it more applicable than to our fruit bearers.—K.

Himalayan Rhododendrons.

At the usual monthly dinner of the Horticultural Club at the Hotel Windsor on Tuesday, June 14th, Mr. Harry J. Veitch presided, pending the arrival of Sir John Llewelyn, Bart., who subsequently read an extremely interesting paper on the above subject. The occasion was further signalised by the presence as guests of Messrs. Watson, of Kew, Moore, of Glasnevin, Sir

George Watt, of Indian botanical renown, and Mr. Tutchet, of Hong Kong, all-recognised experts in the particular branch of floriculture involved. Sir John Llewelyn's paper was so replete with interesting data, and withal so pithy in its compilation, that it is impossible in a mere abstract to do it a tithe of justice. Fortunately it will eventually appear *in extenso* in the R.H.S. *Journal*, so that its valuable contents will be adequately published and preserved. It is a great pity that as much cannot be said of the subsequent discussion the lecture evoked, embracing, as it did, the experience in various fields of such gentlemen as Messrs. Moore and Watson, and last, but by no means least, of Sir George Watt. To deal with the paper first, it embraced, among many other points, a list of the best hardy species, varieties, and hybrids of the Himalayan section, with some brief references to the Rhododendrons of other countries, which were necessarily merely alluded to, owing to the magnitude of the main theme.

Hardiness, he pointed out, must always be to some extent a relative term, since the vagaries of the English springs made temporary victims sometimes even of our absolutely hardy native plants, cutting to the ground the precocious growths induced by prematurely tempting weather. Rhododendrons, however, of Himalayan origin, were, as a rule, capable of withstanding great and sudden fluctuations, and this fact was later on explained by Sir George Watt, who found many of the species at elevations of 14,000 to 16,000ft., blooming in perfection, and clothing the hills with their floral masses, on the very brink of the eternal snows. The affection for peat and repugnance to lime, were strongly emphasised, but Sir John Llewelyn has no peat in his locality, and cultivates most successfully in loamy soil mixed with leaf mould. In this connection Sir George Watt stated that in the native Sikkim habitats the soil was entirely of such a loose, peaty nature that the arm could be plunged entirely into it, and that, moreover, it was of a dry, open character. On the other hand, the yearly rainfall averages 250in, and it may be taken as an essential factor in Rhododendron success that a fair amount of rainfall exists, an item which, however, is partly counterbalanced by the self-protection of the roots afforded by the drooping lower branches, which it is desirable to encourage to that end.

The lecturer paid a fair meed of praise to those who have contributed to raise the Rhododendron to its present high position, by importation of new species, selective culture, and judicious hybridisation, and also indicated the "points" which the flowers should possess in order to attain the ideal of perfection. The question of propagation was also dealt with exhaustively, grafting being severely deprecated and layering advocated, in which connection Sir George Watt stated that in the native habitats the plants layered themselves by means of rooting lower branches, and in this way formed interminable and impenetrable masses, over which alone a passage could be forced. The debt of the Rhododendron lover to the hybridist was fully recognised, and many valuable suggestions as to further alliances made. In short, the whole paper formed a digest of all essential points, and was recognised as such by the many experts present, as it will be by others when it appears in print.

Sir George Watt, who opened the discussion, considered that wild species excelled cultivated ones, and stated that there were three great and distinct Rhododendron areas in the Himalayas, which presented some very peculiar and puzzling features, varying as they did so greatly from each other in elevation and climatic conditions, the habitats, for instance, ranging from 14,000 to 16,000ft in one area, with an enormous rainfall; and at another almost reaching the sea level, with some 30in to 40in rainfall only. It is to this wide range, especially of elevation, that unlooked-for tenderness in some imported species may be ascribed, the seed being sent from easily accessible sources, that is to say, from the lower and warmer regions, instead of from the great heights where absolute hardiness is enforced by the environment. His description of the aspect of Rhododendron-clothed hillsides for miles was most vivid, and some of the varietal facts most curious, one and the same species flanking one side of a hill with pure white, and the other with deep red. Mr. F. W. Moore took up the botanist's side of the hybrid question, and maintained the need of representative collections of pure species in national gardens. He fully recognised, however, the value of hybrids. He also deprecated grafting, and especially that injurious grafting too often effected by foreign trade growers without any study whatever of the affinities and consequent fitness for union of stock and scion. Mr. Watson defended hybrids, and related a curious anecdote connected with Rhododendron seed importation, as collected by natives, a hundred species figuring on the packet labels, which, when raised, demonstrated collection from one and the same plant, the result being an unmerited slur on Kew as the generous distributor of the unflower progeny. Mr. Harry J. Veitch coupled some pregnant remarks on Rhododendron culture, in which his old firm occupies so prominent a position, with the tendering of a hearty vote of thanks to the lecturer for his paper, and to the guests who had contributed so much of value to the discussion it evoked.—C. T. D.

**Sobralia Ruckeri.**

Owing to the short duration of the individual flowers, which usually fade after being open one day, this genus has not hitherto been held in much favour. The name given by Ruiz and Pavon is in honour of Don F. M. Sobral, a Spanish botanist. Of the twenty-five to thirty species known to botanists, there are but few that have enjoyed extensive cultivation. *S. Ruckeri* was exhibited by Sir Trevor Lawrence, Bart. (grower, Mr. W. H. White), Burford, Dorking, at a meeting of the Royal Horticultural Society on May 17. It is one of the most beautiful of the Sobralias, with flowers of firmer texture than those of *S. macrantha*, and of more compact shape. The colour is bright purple-mauve, the lip with a primrose central vein, and whitish throat. It received a first-class certificate.

Cultural Notes: Hardy Orchids.

The culture of hardy orchids, indigenous and others, is sadly neglected when one considers what interesting and beautiful subjects they are for the rock garden and herbaceous border. Just now a large number of species are in bloom, or just passing out of flower, and dwellers in country places may select strong healthy plants, and mark them for removal later on, when the foliage has faded and the plants completed their growth. The usual method of selecting plants in flower and transporting them to the garden is wasteful and useless, for it cannot be expected that plants in the full season of growth and flower can have the roots severed and the whole economy of their existence disturbed, yet come through the ordeal safely.

One of the most charming species in our native flora in my opinion is *Orchis pyramidalis*, one of the most common and most easily established, yet, strange to say, one of the most rarely seen in gardens. Any good garden soil will grow it, except very light, hungry sand; it thrives in sunny positions, and it thrives in shade, provided the soil is not exhausted by tree roots, and altogether it is a plant well worthy of inclusion in any collection of herbaceous subjects.

O. maculata and its near relations, *O. latifolia* and *O. foliosa* (the latter not a native), are also easily cultivated. Rich loamy soil and a somewhat sheltered position is all that is necessary, though a mulching of rotten leaves and semi-decayed manure forms a natural and useful protection against the sun and drying winds in spring. *Ophrys apifera*, the Bee Orchid, is not, perhaps, so easily managed. It is found in all kinds of positions naturally, in secluded, shady, moist spots in rich soil, on the open downs of the south and west country, on chalky worn out pastures and many others; but it does not relish garden treatment generally, and a sheltered fissure in a rockery in proximity to a lump of limestone or turf should for preference be chosen.

But perhaps the most interesting of all hardy sorts are those that flourish in boggy, peaty places, such as the *Cypripediums* and the *Habenarias*. In most gardens special preparation has to be made for them, though often there are waste spots by the sides of streams that may be made very beautiful by the use of these orchids. Only one *Cypripedium*—viz., *C. calceolus*—is a native of this country, and this is, unfortunately, nearly extinct, but most of the species can be obtained from the hardy plant nurseryman.—H. R. R.

The Beech-Tree Pest.

The terrible *Cryptococcus fagi* continues to spread, as almost weekly consignments of it sent to us for identification prove—or possibly it is partly that people are beginning to take more notice of such things, as their minds become more educated to perceive the inherent beauty of our English woods and country-side. Everyone knows that the *Cryptococcus fagi* is an insect which lives in dense communities on the outside of the bark of Beech trees and on the foliage. Its first appearance is scarcely noticeable, there being only a few minute white spots on the trunk, something like small specimens of mealy bug, but later on it increases with astonishing rapidity. Individually the insect is very small and of a dirty dingy colour, requiring a magnifying glass to detect; but the communities are only too apparent, as the insects throw out from their bodies a mass of white flaxy filaments somewhat like cotton wool, which entirely covers them all over, very much as what is called American blight does on Apple trees, except that, whereas the one occurs only in small patches of square inches at the most, the *Cryptococcus* may be found continually in communities of square feet, often in square yards, and not infrequently covering the whole tree from top to bottom, giving it the appearance of having been recently white-washed. After a year or two the bark of the tree dries up and splits and flakes off in sheets, and then of course death soon ensues. On account of the thick covering of waxy substance under which they shield themselves, the insects are very difficult indeed—nay, almost impossible—to reach by spraying, unless the sprayer is phenomenally powerful and intrusive. Any wash applied with an ordinary sprayer is simply thrown back by the waxy covering and rolls off like water from a duck's back. Hitherto all we have been able to advise is to cut down and burn the bark of all hopelessly doomed trees, and to scrub others with a hard and penetrating brush by hand with kerosene emulsion, which will kill all the insects it comes in contact with. Another mixture is 1lb softsoap, $\frac{1}{2}$ pint paraffin to 1gal of hot water, mixing all well together, and apply with a stout penetrating

brush, taking care to keep the wash well mixed while using. Another wash which we feel sure would be more valuable than either, if the sprayer is sufficiently powerful, is 1lb caustic soda and 1lb crude potash, dissolved in 10gals of water, and applied to the trees in the form of a spray. This should be done in winter, while the trees are dormant, and the user ought to wear strong leather gloves while doing it, and take care the wind does not blow the spray back into his face. Our correspondent's new suggestion is to pass a painter's blow-lamp rapidly over the surface of the affected trees. We should think it would certainly destroy the *Cryptococcus*, and if done rapidly enough would possibly not hurt the bark. At all events it is a novel plan, and one worth trying as a first experiment on some tree affected, which the owner would not much miss even if the cure proved fatal; or it might be

**Sobralia Ruckeri.**

tried on some tree hopelessly attacked, in which case it could only hasten the inevitable end by twelve months or so. All we urge is, let it be done carefully and rapidly, so that a reliable trial may be made.—(R.H.S. Journal.)

Adaptation of Land for Afforestation.

This is the title of two papers, published by Laughton and Co., Ltd., Essex Street, Strand, the awards for which were given by the Worshipful Company of Carpenters. The first paper is by Mr. A. C. Forbes, and the second by Professor W. R. Fisher. No price is stated.

Notes on Cacti.

The largest commercial growers of Cacti and succulent plants are Messrs. Henry Cannell and Sons, of Swanley. Their display at the Temple Show afforded the King and Queen, and many other visitors, much amusement and delight, for verily the strange forms and mathematically constructed features are an everlasting wonder to those with minds to regard them. The complete list of species and varieties staged by the firm at the Temple are given here, and we have extracted some interesting general notes from Messrs. Cannell's "Catalogue of Cacti and Succulent Plants."

List of Cacti.

CEREUS colubrinus, Baumannii, Spegazinni, peruvianus monstruosus, Jamararu, spachianus, candicans, sargentianus, chilensis, geometrizaris, Bridgesii, macrogonus, gemmatus, eruca, Pringlei, acidus, labouretianus, niger, Brandegei, marginatus, pruinosus, flagelliformis cristata, and peruvianus monstruosus minor.

MAMILLARIA Newmannii, Donati, nivea, Nicholsoni, nivea cristata, elegans, Gabbi, Williamsi, rhodantha, caput medusæ, lasiacantha plumosa, longimamma, potosina, macromeris, tentaculata, formosa, Wildiana, Beneckeii, sphaerica, rufocrocea, Schelhasei, Parkinsoni, gracilis, pulchella, Pfeifferi, sulphurea, dolichocentra, cirrhifera longispina, angularis, Perringi, pusilla, gracilis, and bocasana.

EUPHORBIA natalensis, canariensis, grandicornis, Hermentiana, grandidens, echinus, and meloformis.

OPUNTIA frutescens, lurida, leucotricha, Engelmanni monstrosa, tomentosa, mendociensis, monocantha variegata, microdasys, microdasys minima, basilaris, tunicata, Bigelowii, senilis, Piccolominiana, and papyracantha.

ECHINOCACTUS ingens, Curtisi, Emoryi, pilosus, Grusoni, horizontalis, Wislezeni, viridescens, rubidus superbissimus, Peninsulae, saglionis, electracanthus, lophothelc, Ottonis, myriostigma, bicolor, recurvens, Junori, ourselianus, curvispinus, robustus, longihamatus, and ornatus.

PILOCEREUS Houletti, Dautwitzii, senilis, and Bruennowi.

ECHINOCEREUS dasycanthus, cespitosus, polycantha, Pereskia, and subulata.

ECHINOPSIS Eyriesi, multiplex cristata, Agave Victoria Regina; Aloe plicatilis, and A. longiaristata.

COTYLEDON orbiculare and C. edulis. *Sempervivum* tabulaforme and S. Laggeri. *Sedum* Sieboldi. *Echeveria* farinosa, Hoveyi, Funki, and metallica crispa. *Anhalonium* Lewini and A. fissuratum. *Mesembryanthemum* Bolusi.

General Notes.

"The berries of some varieties of Cacti are used in medicine as remedies for bilious and other complaints, and carmine colouring matter is extracted from the cochineal insect, which subsists upon the *Nopal* or *Opuntia cochinellifera*. The Saguaro or *Cereus giganteus* is the largest known species, often in its habitat (Mexico) attaining a height of 80 feet and more, whilst the smallest specimens of the entire family are found in the genus *Mamillaria*. As a help to those undertaking the culture of Cacti in this country, to enable them to fully grasp the natural requirements of the different genera, it will be as well for them to know that the species of the genera *Epiphyllum*, *Phyllocactus*, and *Rhipsalis* are wholly or mostly epiphytal—that is, they grow naturally upon the trunks and stems of various tropical trees, mostly depending for their food upon the humid atmosphere which pervades the districts in which they are found. The fruits of many varieties are edible. The buds of such varieties as *Cereus splendens*, *C. triangularis* (the Strawberry Pear), *Pereskia aculeata* (the Barbadoes Gooseberry), *Opuntia tuna* (the Prickly Pear), and *O. ficus indica* (the Indian Fig) are either eaten in their raw state or converted into or mixed with jellies, soups, &c.

"From the different genera of Cacti we pass to that class of allied plants—viz., the succulents. These plants are quite as interesting, and as, or more, diversified in form as Cacti—in fact, with the uninitiated the whole class is one. Generally speaking, when we hear a person descant upon the aspect of his Cactus, certain doubts arise in our mind as to whether the plant in question is a Cactus or not. In most cases it is not. The idea seems to be firmly imprinted upon the mind of the amateur that any plant approaching to oddity of form and peculiar habit must of necessity be a Cactaceous plant. Consequently they administer that starving treatment to them, in conjunction with true Cacti, the bad appearance of which, consequent upon such unnatural treatment, they soon begin to assume. The human eyes tire of such ordinary plants as are commonly met with both in our stoves and greenhouses and in outdoor gardening, and gratefully appreciate anything appertaining to the rare. Such plants as these are the subjects of our present remarks, and most striking effects can be arrived at in the garden beds by the judicious intermingling or dotting about of a few choice succulents. Dotted here and there, on inverted pots or otherwise,

in the stove or greenhouse, they form centres of attraction, and by drawing personal attention to themselves, help by contrast to illuminate the splendour of their floral neighbours. For planting in window boxes, as specimens in vases or tubs, as centres or edgings to beds upon the lawn, dotted in and out amongst rockwork, or to form lines—or, in fact, any floral design in carpet bedding—they are invaluable.

"An interesting feature of the cultivation of succulent plants is their freely-disposed habit of propagation. As with many species of the globular Cacti, which obstinately refuse to produce offsets, propagation may be readily effected by cutting out the centre of the plant, or by carefully detaching a ripened leaf from either the plant or flower stem, which will strike with certainty if laid upon silver sand, the leaf base gradually swelling until the small plant appears. Has the reader ever tried this interesting experiment with leaves of *Begonias*, *Chrysanthemums*, or *Coleus*? That curious plant *Bryophyllum calicinum* possesses perhaps the greatest peculiarity in this manner of propagation, the young plants being produced all round the parent leaf. The quaint plant known as *Mesembryanthemum tigrinum* is frequently mistaken for a Cactus. It is an interesting plant, much resembling a bunch of tiger's claws. The habit and general appearance of this curious plant is very different to that of the rest of the genus. They are generally natives of South Africa. Various salts are obtained from the leaves of the plants constituting this genus. The fruits of the *Mesembryanthemum edule* (the Hottentot Fig-Marigold) are eaten with gusto by the Hottentots, but to our palates they appear mawkish, as do the fruits of Cacti. A regular trade is carried on by the natives in the tropics where the so-called Ice-plant, *Mesembryanthemum crystallinum*, abounds in the soda which they obtain from the burnt ashes of the plant. Several varieties of the *Sedums* are edible, and are looked upon in the light of luxuries by the natives who are lucky enough to find them.

"Another curious succulent is the one known as *Sempervivum arachnoideum*. A well-grown specimen of this plant is always attractive by reason of the peculiar closely-woven web with which the rosettes are covered. The juice extracted from the leaves of many of the *Sempervivums* (House-Leek) is very efficacious in various skin disorders. It has the tendency to allay itching, and it is also used by travellers and natives alike as a dressing for wounds. No collection is complete without a specimen of *Stapelia*. These plants are quaint alike in stem and flower, and are good subjects for planting in hanging baskets in the stoves or greenhouse. The flower produced by a *Stapelia* is veritably a curiosity amongst curios. It is most strangely marked with various colours, in some varieties measures as much as seven or eight inches in diameter, and in many instances exhales a most foetid odour, which has earned for it the name of the Carrion flower.

"A most welcome sight is some nicely-grown bushy specimens of *Rochea falcata*, a choice winter-flowering plant. This species of almost as deliciously scented as a *Tuberose*. Another good winter-flowering plant is *Crassula lactea*—a good healthy plant in a 5-in pot should carry eight or nine trusses of bloom. We must not omit a word in favour of the *Echeveria*, which in its varieties *metallica*, or *Funki* makes handsome specimens for greenhouse or conservatory decoration. Of the *Echeverias* alone there are more than twenty varieties known. The cut blooms from some varieties—*globosa*, *secunda*, and *secunda glauca*—are very much admired when used in conjunction with others for table decoration. Thus it will be seen there are many varieties of succulent plants to select from to flower at all periods of the year, and to please the most critical eye and fastidious taste. We will conclude by wishing the reader all success in his experiments with these curiosities of Nature."

Fruit Prospects in the Vale of Evesham.

The prospects for the fruit harvest in the Vale of Evesham are far less promising than they were a few weeks ago. The blossom was the best seen for many years, but the fruit has not set well, and has been falling rapidly. This is attributed to the cold winds and chilly nights, which have checked the flow of the sap. Plums all round cannot be more than half a crop, and in some quarters the better sorts are almost a failure. Prolifics will be very short, and Victorias cannot be half a crop. Damsons, too, have failed. Pershore has withstood the strain better than other sorts, and should yield fairly well. Aphid blight is prevalent and causing trouble, while the borer has been found extensively in some orchards. Spraying with arsenical solution has been found efficacious for this pest. The gall mite has attacked Black Currants with disastrous results, and Red Currants will also be short. Apples are falling very rapidly, and Pears will be almost a total failure. The only crops which promise well are Gooseberries and Strawberries, which were never so prosperous. Gooseberries have been selling fairly well considering the immensity of the crop, and Strawberries are now coming into the market. With a few bright warm days the markets will soon be well stocked. Cherries are again a partial failure after a most prolific blossom.

Wayside Salad.

During the spring and early summer, our British ancestors of centuries ago were busily engaged in gathering wild plants for salads, soups, or even for puddings, that might be useful as food and medicine too. Wild flowers are yet plentiful in some places, though scarce in others from various causes; but when so great a part of Britain was woodland or open country, such plants must have grown in profusion. Hence, folks got on fairly well without the vegetables now abundant, that are raised in gardens. There cannot be a doubt many of our native plants have useful qualities, indeed they have not quite lost their old repute, and villagers may still be seen intent upon gathering herbs, to be cooked or eaten raw as a spring physic. Sometimes we think that sundry mistakes must have now and then occurred when plants were brought in by persons who had no botanical knowledge, especially if children were sent out to gather, and unsuitable species got mixed with those really wanted. Again, popular belief in their excellence led our ancestors to eat several species, to which we should take exception on the ground of their disagreeable taste, or because it was likely they might prove injurious.

The first salad of the year, one that could be obtained with-

seen poor women carrying Pennyroyal or "Pudding-grass," which they had picked off the marshes about Mile End, to sell them in the market at Cheapside.

If the statement is correct, people have been daring in the past. They sometimes boiled for the table the leaves of the Celery-leaved Crowfoot, a plant deadly poisonous. Probably this operation rendered it comparatively harmless, as drying does other acrid Crowfoots; thus, Buttercups, which cattle avoid while growing, are eaten without hurt when turned into hay. The unopened buds of a kindred plant, the Marsh Marigold, one of the pioneers of spring, the "Mary-bud" of Shakespeare, were pickled in vinegar, which lessened their acrid properties.

Amongst the plants of spring, two species are particularly notable, as being abundant everywhere, and once largely used for salads. First of these is the Dandelion, which had also another popular name, intimating the fact that its diuretic powers were known. But the other name, which is equivalent to "lion's tooth," Mr. Friend believes was not given because of any resemblance the leaf had to the tooth of the quadruped; he thinks its value medicinally was compared to that of the lion's tooth. The point must remain doubtful. Certainly, the young leaves were largely eaten raw, and the French people also ate the smaller roots with bread and butter. If blanched,



A collection of Cacti shown by Messrs. Cannell at the Royal Botanic Society's Exhibition.

out any trouble in some places, even during the winter months, was the common Watercress. We read of its being picked freely from the suburban ditches of London, such as those about Tothill Fields, Westminster. Our ancestors ate the plant, untroubled with those fears of any disease germs lurking upon the leaves which cause apprehension to us moderns. But Watercress, though obtainable at all seasons, was chiefly sought in the spring, to be eaten as a remedy against "humours," so called. The plant was sometimes cooked, not a practice usual now. It does not seem to have been cultivated till 1808. Cress, as a name, was given to a variety of plants beside the true Cresses; it would seem the Chickweed was reckoned amongst, a plant which, like the Watercress, might be gathered all the year round on sheltered, moist places. This was boiled for the table as greens, and also macerated in oil to make a medicament, applied to relieve pains or stiffness.

Not unfrequently, those who were gathering Watercresses in a streamlet came upon the Brooklime (*Veronica beccabunga*). The shoots and young tops were eaten for salad, they are rather succulent and in flavour bitterish. That it has virtues as a blood purifier I can quite believe, but its pungency, on experiment, I found disagreeable. Not so long ago the sprigs were sold with bunches of Watercress in some parts of Scotland, being called "Water-purples."

Another plant that our ancestors cooked, and we presume relished, in spite of its strong taste, was the Pennyroyal, smallest of our Mints, with downy leaves and purple whorls of flowers. Our ancestors believed it to be a herb that was healthful and strengthening for all, and in spite of its very strong flavour, they put it into puddings. Gérard mentions having

the Dandelion was supposed to resemble Endive, and Loudon advises its cultivation in gardens, giving it a red soil, removing the flower stalks, and tying it up so as to blanch it effectually. The villagers formerly dug up the roots and stored them in barrels, to be added during the winter months to their stews. I have remarked in this *Journal* that for some years past the Dandelion has occurred in greater profusion than usual about the fields of North Kent.

The second spring favourite was the well-known Stinging Nettle, which was highly esteemed as an addition to stews. It was also boiled to be eaten like Spinach. In February or March people frequently cut the young tops, and, indeed, they are still gathered by some villagers, who take them, or a tea made from them, to purify the blood at that season. Soyer, the great cook, commended the flavour of Nettle leaves. Going by the doctrine of like curing like, it was formerly supposed that a plant able to irritate the skin would, if infused, cure rashes and sores. Old books give directions for growing the Nettle, forcing it to get Nettle Kale and Nettle Spinach during January; they put the plant in a hotbed, sometimes they also blanched it by covering it with flower pots. The Dead or Blind Nettle may have been now and then plucked instead of the stinging species for table use, owing to the resemblance of the leaves, though the flowers are markedly different. In Sweden the Dead Nettles are occasionally cooked, and the red species (*Lamium purpureum*) was an old-fashioned remedy in England for stopping a flow of blood.

The Treacle Mustard, Hedge Garlic, also called Jack-by-the-Hedge, has names expressive of its pungency and odour. It is a showy plant, conspicuous by its large leaves and showy white

flowers, but an approach generally warns people from touching it. The plant "warms the stomach and causes digestion," so remarks Turner, of the seventeenth century. There is evidence that it was once freely used in the spring to flavour stews or sauces. A writer upon diet of the present day earnestly advises his readers to imitate their forefathers, and make up their minds to relish the Hedge Garlic, though it is doubtful whether anyone will venture on the savoury dish. Akin to this species is the Charlock or Wild Mustard, having seeds more acrid than those of the cultivated varieties. But the young leaves have been boiled in spring, and eaten as turnip-tops.

Another plant of the Composite tribe, the common tall Burdock, supplied a substitute for Asparagus in its tender shoots. The liking for strong-tasted herbs is manifested again, by the fact mentioned in several old books, that the leaves of the Great Valerian were picked constantly for the purpose of flavouring pottage and all kinds of broth. It was called "Setewall," a tall plant conspicuous upon the marshes with its pink flowers, probably more abundant formerly than at present. No doubt it was eaten partly because of its medicinal value.

Not far from water, too, we generally find that rough looking plant, the Comfrey, showing greenish white flowers in May. On the Continent, where it is a very abundant species, the colour is mostly reddish purple. Its bristly stem and leaves nobody wants to handle, but the latter were found, while young, to make an excellent dish when boiled, and the roots, full of mucilage, supplied an old remedy for coughs. Then the Sow Thistle, familiar to us as a food for rabbits, has been brought to table, the tender tops being boiled and mashed like Spinach; the plant is full of milky juice.

We read about the healing properties of the abundant weed called the Shepherd's Purse, but it is not, I think, on the list of our food plants. Very probably it was eaten occasionally. In America the tops are boiled, and considered equal to a good Cabbage in flavour. The plant has also been grown to obtain it larger and more delicate. Nor must we forget the Lambs' Lettuce (*Fedia olitoria*), to which the French gave the name of Monk's Salad. It is a frequent plant upon cornfields, having bluish, inconspicuous flowers. Gerard commends it as a salad herb, and advises that it be eaten during the early spring with salt, oil, and vinegar.—J. R. S. C.

Laburnum Adami.

Laburnum Adami is a hybrid between the common Laburnum (*L. vulgare*) and the *Cytisus purpureus*, and was raised in 1826 by a nurseryman named M. Adam, at Vitry, near Paris. This remarkable hybrid is regarded as being a graft-hybrid, but writers differ as to the origin of it. Some favour the idea that it is a graft-hybrid, while others incline to the more probable opinion that it is of seed or sexual origin.

Sheffield Horticultural Society and York Gala.

A visit of members and friends of the Sheffield Floral and Horticultural Society to the York Show was arranged by Mr. Lewendon, secretary to the Sheffield Society, who accompanied a party of thirty-six on the first day of the gala. The party were well repaid for their visit. A look round the nurseries of Messrs. Backhouse and Son was followed by dinner at the Davy Hall, and the afternoon was devoted to the inspection of the floral beauties of the exhibition. The visitors were naturally pleased to find that one of their own members (Mr. Artindale) had won premier honours for the large group. The groups generally came in for a full share of inspection, as also did Roses and cut flowers and fruit. Messrs. Perkins' bouquets and baskets were grand, but the *Journal* last week erred in describing the table of floral designs as being put up by this firm, as they were the productions of Messrs. Artindale. Garden Roses were attractive, and fruit was good, but it was somewhat difficult to the uninitiated to understand the judge's decision as to Strawberries. Outside attractions also claimed the visitors' attention, but the splendid music of first-class bands was somewhat marred by the blasts from several steam roundabouts in very close proximity. Things are done very well at York, but 5d. for a cup of tea was enough to take away one's appetite. One almost envies the committee, the ideal spot they possess for their very deservedly popular carnival, which is undoubtedly the event of the year in York, and for which the citizens reserve themselves. The exhibits have already been described in the *Journal*, but the trays of vegetables exhibited by Mr. Beckett; the fruit by Mr. Goodacre; the display of hardy flowers; the Roses, the Paeonies by Messrs. Bath, and the Carnations, all deserve special mention. The visit was an enjoyable one, and passed off very pleasantly, and efforts are to be made next year to arrange a similar visit to the great Shrewsbury Show. We understand the show of the Sheffield Society promises to be an attractive one. It is to be held in the charming grounds of Holly Court, and should, therefore, attract thousands of visitors. We hope it may be so, for the desire of its executive is to materially increase the prize list, and to attract the beauties of the floral world to its exhibitions.

NOTES & NOTICES

Life of the Late Miss Eleanor Ormerod, LL.D.

We have received a book from Mr. Murray, the publisher, which we will shortly review, this being a biography of the late Miss Ormerod. The price is 21s. net.

Fruit in Kent.

The principal fruit sales in East Kent have been held this week, and have evoked considerable interest in consequence of the shortness of many of the crops—especially Cherries. Competition was very keen for those orchards in which there is a fair show of fruit, and high prices were realised. As a result of the keen winds of last week and the unkindly weather that then prevailed, Cherries have run off to an enormous extent, and other soft fruits have also suffered seriously. Apples, too, which at one time promised to be the feature of the year, have been blighted to a terrible extent, the crop being in many cases a complete failure. Only where spraying has been thoroughly done has the fruit been saved from destruction.

Royal Horticultural Society.

At the usual fortnightly meeting of this society held at the Drill Hall of the London Scottish Volunteers, Buckingham Gate, S.W., on June 14, 257 candidates were elected Fellows of the society. These included:—The Dowager Duchess of Argyll, the Earl of Desart, K.C.B., the Earl of Lindsay, the Earl of Tankerville, the Earl of Essex, the Countess of Lathom, the Countess de Grey, the Baroness Campbell, Lord Dormer, Lord Saltoun, Viscount Cross, Lord and Lady St. Oswald, Lady de Ros, Lady Campbell-Orde, Sir Homewood Crawford, Sir W. Lee Warner, Sir G. J. Armytage, Bart., Lady Battie Wrightson, Sir C. Gibbons, Bart., Sir G. A. Pilkington, Sir R. G. Hervey, Bart., Lady M. Estcourt, General Sir R. Harrison, Sir E. Lees, Hon. Lady Ingilby, Hon. Mr. Justice Kennedy, Lady Renshaw, Sir Lindsey Wood, and Sir E. G. Jenkinson. The next show of this society will take place on Tuesday, June 28, and will be the last to be held in the Drill Hall, as the Holland House show will follow on July 12, 13, and after that the society's new exhibition hall will be ready for occupation. When one looks back over the shows that have been held at the Drill Hall for the last seventeen years, and sees the progress made both by horticulture itself and by its representative society, now celebrating its centenary year, one takes heart for the possibilities of still greater expansion in the near future.

Runch and Charlock Spraying.

If the numbers of newspaper paragraphs and of reports on the spraying of Charlock in Oat crops are in accordance with the progress made, then of a surety Charlock is doomed to extermination speedily. But we travel in the trains north, west, east, and south, and still see seas of yellow "Runches" and Charlock, so that for a while yet, the reports will continue to be issued. The latest arrival is from the West of Scotland Agricultural College, and is issued by Prof. P. Patrick Wright, F.R.S.E. The conclusions to be drawn from these experiments are:—1. That Runch and Charlock weeds in the Oat crop can be completely destroyed by spraying with 3 per cent. solutions of sulphate of copper applied at the rate of fifty gallons per acre. 2. That, while a single spraying may be effective in destroying the greater part of the weeds, it will be found safer, and on the average of years probably more profitable, to apply the spraying twice at intervals of about a fortnight. 3. That the best time to give the first spraying is just when the greater number of the weed plants are bursting into rough leaf, and not at a later stage in their growth. 4. That, where the weeds are at all abundant in the crop, its produce can be greatly increased by their destruction, and the increase will far more than repay the cost of the spraying. 5. That the spraying of corn crops for the destruction of Runch and Charlock, wherever these weeds are prevalent, forms, therefore, a sure and a highly profitable means of increasing their yield and returns, and that it ought accordingly, in such circumstances, to be made a regular part of good farm practice.

Departmental Committee and the Fruit Inquiry.

The Departmental Committee appointed by Lord Onslow to enquire into and report upon the fruit industry of Great Britain held sittings on the 15th, 16th, and 17th inst. The following members were present:—Mr. A. S. T. Griffith-Boscawen, M.P. (chairman); Col. Long, M.P.; Mr. C. W. Radcliffe-Cooke, Mr. Monro, Mr. Vinson, Dr. Somerville, Mr. P. Spencer Pickering, M.A., F.R.S.; the Rev. W. Wilks, and Mr. Ernest Garnsey (secretary). The following witnesses gave evidence:—Mr. J. E. Hemmell, representing the Great Western Railway; Mr. G. Monro, of Covent Garden, a member of the committee; Mr. J. W. Dennis, a fruit-broker, of Covent Garden; Mr. G. W. Meats, jun., the auctioneer at the Hereford Corporation Wholesale Fruit Market; Mr. J. T. Sheppard, a grower from Holt, North Wales; Mr. George Langridge, of Tunbridge Wells, representing the Surveyors' Institute; Mr. T. W. Cowan, representing the British Bee-keepers' Association. The committee visited on the 14th inst. some of the principal fruit plantations and the Horticultural College at Swanley.

Notes from Newton Mearns.

With the approach of June, summer had come all at once, and the first fortnight recorded a daily temperature of 84deg in shade. Unfortunately, however, it did not come to stay, for the past week was one of a very changeable nature, and rain and cold winds intervening. With the little summer weather we were blessed with so early, everything was pushing forward, and remark was being passed by agriculturists and others that this would be an early season. So it seems; for I have just heard that Mr. Lyon, the gardener at Pollok Castle here, has been cutting some splendid specimens of Cauliflowers since the 9th inst. The fruit trees are now past their blossoming, and a heavy crop has set, and 1904 will be a fruit year. The garden all over is looking well, although a little heat now would tend to make improvements. The Roses are exceptionally early this year, and at present lovely buds are to be seen, and by ten or fourteen days we should have a fine display. Absence of frosts, wireworm, and the borer, will also make 1904 "a Rose year." No bees have swarmed yet, but we are expecting some daily. Although the weather has not been at all favourable for these little creatures, still I see a bee man here who is working for supers at present, having 12lb or nice honey from one hive, and is running into another 12lb box. This is not bad, but I wonder what taste the honey has at this time of year?—N. R.

British Gardeners' Association.

Writing from Kew Road, Kew, Mr. W. Watson, the hon. secretary, says:—"Will you kindly announce in this week's issue of the *Journal* that forms of application for membership, decided upon by the committee of selection, are now ready, and may be obtained on application to myself?" The qualifications for membership are as follows:—1. To be not less than twenty years of age. 2. If less than twenty-three years of age, to have had at least five years' training in good private, public, or commercial establishments. 3. If more than 23 years of age, to have had at least seven consecutive years' professional experience. 4. To be able to produce satisfactory testimony as to general character. Candidates must obtain from the secretary a form of application, which, when filled up, should be returned to him. If the committee of selection are satisfied that the candidate is qualified for membership, they will instruct the secretary to forward him a certificate. The certificate will be renewed annually on receipt of subscription. The charge for registration and certificate will be 2s. 6d., and the annual subscription 2s. 6d. These two sums should be forwarded to the secretary together with the form of application. Proof of membership will be the possession of the Association's certificate for the current year. Writing somewhat late on the morning of going to press, we cannot attempt to detail the full advantages which we believe will result from membership of a strong, earnest association such as this is going to be, but we can briefly point out that by its inception the gardener has a third string to his bow (and we know by-and-by it will be the main one) in seeking for a situation. He at present must rely on the nurserymen and on advertising in the Press. Well, if he can save the latter, and avoid the vexations of the former, that is a gain. An association can always do more than disunited individuals, and this is unchallengably true when the interests of a whole calling are at stake. Gardeners, in your thousands, join!

Messrs. Artindale's Floral Designs.

In our report of the York Gala last week we credited Messrs. Perkins, of Coventry, with the premier award in Class 76, for a table of designs. This position was won by Messrs. Artindale, of Sheffield, and we regret our error.

United Horticultural Benefit and Provident Society.

The monthly committee meeting of this society was held at the Caledonian Hotel, Adelphi Terrace, W.C., on Monday evening, June 13. Mr. Chas. H. Curtis presided. Six new members were elected. The death of Mr. Edwin Isted, of Hove, Brighton, was reported. Mr. Isted was a comparatively young member, but, having left a widow and three young children unprovided for, the committee granted £5 14s. 7d. from the Benevolent Fund, to be added to the £4 5s. 5d., the amount standing to the late member's credit, thus bringing the amount up to £10 for the widow. The sick pay since the last meeting was £29 14s.

A Suggestion for Fruit Growers.

The "Estate Magazine," published by the Country Gentlemen's Association, for this month contains a practical suggestion for the many fruit-growers who are likely to be troubled with glutted markets this season. The writer, Mr. Cyril Van Lennep, is a landowner in Asia Minor, and he describes in detail how the surplus grapes of that country are sun-dried, and become the well known "Sultana" of commerce. Mere drying, however, is not sufficient, and in order to prevent the fruit shrivelling up and becoming useless, it is necessary to first treat it with a "dip," consisting of a mixture of olive oil, water, and potash. The Grapes are picked by hand, placed loosely into handy-sized baskets, about 2ft 6in deep by 10in across, and are then dipped in and out of the solution twice, and placed on draining boards to take away the surplus liquid. When drained, but still wet, the bunches are taken out and very carefully laid on prepared ground bunch by bunch. The sun does the rest. It is admitted that the climatic conditions in England will not allow of this process being carried out to the letter, but it is suggested that the many oast houses used for drying hops might also be utilised for fruit drying, and that experiments should be made with such fruits as black, red, and white Currants, Gooseberries, and Cherries. Strawberries and Raspberries seem doubtful, especially the former, but all sorts of Plums, Greengages, and Damsons seem specially fitted for drying. A suitable dip has to be discovered, consisting of vegetable oil, potash, and water, and the proper temperature for drying proved by experience.

Examination in Horticulture, 1904.

The annual examination by the R.H.S. in the principles and practice of horticulture was held on April 20, 1904, when 190 papers were sent in. Three hundred marks were allotted as a maximum, all candidates who obtained 250 marks and upwards being placed in the first class. The total number of these was 35, or about 18.3 per cent. of the whole. Those who secured 200 marks and less than 250 were placed in the second class. Their number was 93, or about 49.2 per cent. Those who obtained 100 marks and upwards were placed in the third class, their number being 62, or about 32.4 per cent.

There has been a slight decrease in the number of candidates, as 198 offered themselves in 1903, and 229 in 1902. This is probably the result of a somewhat more advanced syllabus. There has, however, been a considerable advance in the quality of the papers, as shown by the percentages; for in 1903 the first class was only 7.6 per cent., the second class 31.3 per cent., and the third class about 56 per cent. These facts were commented on in the report of last year (*Journal Royal Hort. Soc.*, Vol. XXVIII., p. 119). Year by year the students exhibit a better knowledge of practical horticulture, nearly all the questions bearing upon the culture of fruit trees and vegetables being this year well answered. Most of the candidates have also a good knowledge of artificial manures and their application to the crops in the kitchen and fruit garden. The question referring to conservatory decoration was not very well treated. Many of the candidates could name only a few of quite the commoner plants, and could give but meagre directions for culture. Some of the candidates answered three only of the four questions they ought to have answered; whereas if they had apportioned the time necessary for each question, they might easily have answered all four.

Gadding and Gathering.

Mr. W. Sydenham's Special Lines.

The fame of Tamworth is spreading fast, and at certain seasons of the year it becomes a veritable Mecca to which all roads lead, but the pigs for which it has so long been noted are no longer the greatest attraction, although, I believe, they are still as good as of yore—the pride of place must now be given to the Violas, Pansies, autumn-flowering Chrysanthemums, and other hardy flowers. Mr. W. Sydenham is the magician whose energy and skill have raised his favourite flowers to so high a pinnacle of fame that they are sought after from every quarter of the globe.

Not till recently have I had the pleasure of inspecting his unique collection of hardy flowers, for although I have often been in the neighbourhood, my visits have been too fleeting to attempt to see what I knew would take hours to accomplish satisfactorily. I have, therefore, previously managed to look in at the wondrously fine Calceolarias of the Rev. Wm. MacGregor, which his gardener, Mr. G. Higginson, always grows so well, and then rush off to catch my train. The opportunity, however, came a short time ago, and on a gloriously fine day I reached the home of Queen Viola, where she is cherished, and tended, and so improved that there is no gainsaying the fact that age only adds to her charms, for she shines with the reflected glory of her bright and dainty children. With the "Viola King" as my guide, we stepped out briskly toward the many brilliant patches of colour ahead, which appeared like a mighty multicoloured mantle spread over the rising ground. The sight in the distance was imposing; the inspection at close quarters delightful, yet bewildering, in consequence of the variety and combinations of colour. How could it be otherwise? for around me in beds of uniform size was the cream of the world's Violas—400 beds, each bed containing 1,000 plants in flower. If by chance there can be anyone interested in gardening who does not fully recognise the value of Violas for spring and summer bedding, the sight I saw would, I think, convince them.

One noticeable feature was the great improvement in regard to colour which the new varieties have over older ones. Another, the sturdy, compact growth of those specially recommended for bedding. I shall only attempt to enumerate a few varieties which caught my eye and suited my own particular taste, but there were hosts of others equally good. The names of those I give I made a special note of, but all the varieties grown are so accurately described in Mr. Sydenham's catalogue that I am sure all intending purchasers may absolutely rely upon his published descriptions.

Abbess, an improved Countess of Kintore; Councillor Waters, crimson purple; Heliotrope, white centre; Jackdaw, purple, large yellow eye; John Quarton, light mauve; Magnificent, blue, flowers large, probably the best blue bedder; Mrs. Chichester, flaked or marbled purple on white ground, good for exhibition and wonderfully striking when grown in a mass.

Mrs. W. Greenwood, canary yellow; Mrs. W. Sydenham, deep yellow, grand for bedding; Queen of Stripes, orange and copper, most attractive; Rose Noble, the richest orange yellow I have ever seen, grand for exhibition; Snowdrop, a beautiful pure white; and Sunbeam, rayless cream yellow, edged lilac.

Too much space would be taken were I to attempt to describe many of the best Pansies noticed. Suffice it to say that the collection includes the very best show varieties in cultivation. Those who have only a hazy idea of the difference between a Pansy and Viola should send to Mr. Sydenham for his special leaflet on the subject. They will then see the distinctions clearly defined, and an amusing illustration of the process of evolution.

Another great feature of the Tamworth establishment is the enormous quantities of early-flowering Chrysanthemums grown. They have been taken in hand in earnest, with the result that by careful hybridisation many new varieties of sterling merit are sent out each year. No less than 5,000 seedlings are being grown this season. These, together with the huge number of standard varieties, will provide a feast indeed on September 24, which is to be the Chrysanthemum feast-day at Tamworth.

Michaelmas Daisies, which have become so popular during the last few years, are also grown in quantity, and the collection is one of the most perfect in England, every new variety of merit being tested beside older ones.

The great motto of the guiding spirit at Tamworth is "Everything the best at moderate prices," and Mr. Sydenham is proving clearly what can be done with various species of hardy flowers when taken in hand by an enthusiast who has energy, brains, and definite ideals at which to aim during the process of evolution.

Mr. W. Sydenham is doing a great work in this direction, and from the heart of his emporium lines of interest radiate to remote corners of the earth, spreading throughout their course the beneficent blessings of enthusiasm for the beautiful.

The Culture and Uses of Sarracenias.

The remarkably fine collection of these plants that was staged by Mr. A. J. A. Bruce, of The Nurseries, Chorlton-cum-Hardy, near Manchester, at the recent Temple Show, will be fresh in the minds of very many of our readers; and Mr. Bruce, at our instigation, has furnished us with the following notes on their culture:—

1. **THE SORT OF HOUSE THEY REQUIRE.**—They may be grown with the greatest success in the stove or greenhouse; in either case they must have the most sunny place to bring out the colours of the pitchers. Let them be raised upon inverted pots as near the glass as possible. We have grown them in a temperature of 60deg to 70deg, in the full sunshine, until the pitchers are matured, when a shading of limewash is put on the glass; or the plants are removed to a cooler house amongst other plants, where the pitchers will remain bright and fresh for a long time.

2. **WHAT TO GROW THEM IN.**—The best compost is fibry peat, broken in lumps the size of a small hen's egg, to which is added one-fourth of fresh sphagnum, one-eighth of clean crocks and charcoal, broken to the size of peas, and a good sprinkling of coarse silver or river sand. In potting, put two inches of clean crocks in the bottom of the pot, keep the plant raised up similarly to an orchid, and rounded off and finished with a thin layer of sphagnum to give the appearance of a little mound.

3. **WATERING.**—This is a special feature in their successful cultivation. As they are naturally found in swampy places, it is evident they must have an abundance of water in an artificial state of cultivation, and they must be drenched every day during the growing season, and every other day or so during their season of rest.

4. **REPOTTING.**—This must be done regularly once a year, as it is the most essential particular in their successful cultivation. In the case of *S. Drummondii* and *D. alba*, I find the early autumn is the best time, as they usually throw up their largest pitchers in September and October; all the rest of the species I re-pot in early spring, just before active growth commences. They may, however, be potted or divided at any time of the year, as I never found them to suffer in the least from the operation. But it must be observed at the annual potting that the roots be shaken entirely out of the compost, as if this be not done success will not be the result, as fresh compost once a year is absolutely necessary, owing to the great amount of water they require, and its not being possible, in artificial pot culture, to carry off the foul water or mud as in their natural habitats. The compost, therefore, cannot fail to become sour, and must be changed, or they never do satisfactorily. Attention to this particular is the secret to their successful cultivation.

PROPAGATION is readily effected by cutting off the suckers with roots attached. These are freely produced round the sides of the pots.

SARRACENIAS AS FURNISHING SUBJECTS.

When pitchers are once matured they will stand the dry atmosphere of a room better than most plants that are commonly used for the purpose, provided the roots are well supplied with water. It is hard to imagine anything more uncommon, or more unique in beauty, than one or two varieties in a room. As flowering plants, the flowers remind one of the Crown Imperials; the flava type all have yellow flowers. In the case of *f. Fildesi*, and *flava ornata*, the flowers develop into handsome proportions, colour a deep, rich yellow, lasting some ten days in good condition. In hybridising these flowers, it is very interesting to observe when the flowers are full open the upper portion of the flower stalk bending down, forming a loop, but when the flower is fructified the flower



Vallisneria spiralis (female plant)

*Vallisneria spiralis* (male plant).

house, where frost is just kept out. The house stands about north and south, and at the north end, just by the door (which stands open all day, excepting when a strong north wind is blowing) on an open bench over the water tank, they luxuriate, and the pitchers develop into giant proportions.

Vallisneria spiralis.

This genus, so remarkable on account of the extremely curious manner in which the process of fertilisation is effected, consists of two species, one of which is confined to Australia, while the other is widely dispersed over the tropical and warm regions of the earth—both of them, however, inhabiting only fresh-water rivers or lakes. *V. spiralis* is the best-known species, and the one commonly grown in aquaria in this country, is found wild in many parts of Southern Europe. It is a perennial herb, and has a very short stem, bearing a tuft of thin narrow green grass-like leaves, hardly a quarter of an inch broad, but often a yard or more long, with their apices finely saw-toothed: the stem also sending off suckers from its sides, which ultimately take root and produce new plants. The two sexes are borne on separate plants. The male flowers are extremely minute, white, and of a globular form, without special stalks, but seated upon and entirely covering a short general stalk of a conical form; the whole being enclosed while young in a very short-stalked spathe, which splits into two or three valves at maturity, when also the little flowers become severally detached from the general stalk, and rise by their natural buoyancy to the surface of the water, where their three-parted calyx expands and permits of the escape of the pollen from the anthers. The stamens vary from one to three in number, and alternate with several rudimentary ones. The female flowers are altogether different from the males. They have a cylindrical ovary, bearing three small spreading calyx-lobes at the top, and contain three rudimentary stamens, and three large oval often split stigmas. Each flower is enclosed in a tubular spathe, borne singly at the end of a very long slender spirally-twisted stalk, which uncoils more or less according to the depth of the water, so as to allow the flower to float upon the surface, where it expands and is fertilised by its stigmas coming in contact with the pollen of one or more of the very numerous detached male flowers floating

stem assumes a perfectly perpendicular position, the petals change their colour, ultimately falling off, while the seed vessel remains in a topsy-turvy position. In the case of varieties where the pitchers are distinguished by a crimson shade of colour, the flowers have a range of hue from deep crimson to various shades of pale red and pink. Several of them are sweetly scented. Under artificial cultivation two crops of flowers are produced, as are also two crops of pitchers, the flowers in each case preceding the pitchers.

DARLINGTONIA CALIFORNICA.—So far as I know there is only one variety of *Darlingtonia* in cultivation, *D. c. rubra* being quite distinct in shape and colour of pitcher. We treat this somewhat as for *Sarracenias*. Some have experienced difficulty in succeeding with it. While the compost used is the same, not quite so much water is given at the root. I find the temperature that suits it best is that of a cold

about. After this latter process has taken place, the spiral stalk coils up again, and by that means conveys the flower to the bottom of the water, where it produces a cylindrical berry varying from half an inch to two inches in length, and containing numerous cylindrical seeds marked with longitudinal ridges. The leaves of this plant form an exceedingly beautiful object under the microscope, the extreme tenuity and transparency of their cellular tissue allowing the observer to watch the movement of the fluid contents of the cells.—("The Treasury of Botany.")

Origin of Parasitism in Fungi.

Mr. George Massee, Principal Assistant in the Herbarium of the Royal Botanic Gardens, Kew, has contributed to the Philosophical Transactions of the Royal Society of London an interesting account of investigations that he has carried out on the origin of parasitism in fungi. The research also throws much light on the factors that determine the immunity of certain species of plants and even individuals to the attack of specific fungi. It is well known that certain parasitic fungi have the power of attacking with ease definite crops, whereas they have no power to enter the tissues of other crops, even though they be closely related. It has also been found that even varieties of some particular species of plant may be resistant to the inroads of a parasite, while other varieties may at once succumb. For example, some wheats are much more resistant to rust than others, while during the past few years varieties of Turnip have been raised which have special power of resistance to the attack of the parasite that causes "finger and toe."

This immunity, or comparative immunity, has attracted the attention of many scientific workers, and now Mr. Massee claims to have discovered its cause. Formerly it was held that an individual plant was liable to invasion by a fungus, or not, according to the condition of the atmosphere at any particular time, or owing to the special development of the cuticle covering the leaves or stem. Should the latter be specially strong, then it was believed that the fungus might find it impossible to enter; on the other hand, if the cuticle was specially thin, the fungus would have little difficulty in effecting an entrance. Mr. Massee's researches, however, go to show that small differences in character of the sap of the plant are probably the main determining causes as to whether the fungus shall be able to gain an entrance. As a general rule it was found that if a weak solution of sugar was introduced beneath the skin of the leaf, and if the spores of our commoner parasitic fungi were distributed on the patch so treated, the fungus had the power of entering and living on the sugary solution, and eventually of attacking adjoining tissues. If, on the other hand, a weak solution of acids was introduced, the fungus, as a rule, showed no disposition to enter.

Certain fungi are purely saprophytic, that is to say, can only live on dead vegetable matter; and yet by gradually accustoming them to push their tubes into living plants by injecting a substance by which the fungus is attracted, Mr. Massee has been able to "educate" such fungi into becoming parasites, that is to say, fungi capable of attacking living plants. He comes to the conclusion that all parasites have developed from saprophytes, and that it is quite possible for a harmless fungus living on dead vegetable matter to acquire the habit of living on growing plants. As a case in point, he cites the fungus *Dendryphium comosum*, which, until recently, appears to have been quite unable to attack living plants, but which, aided by the unnatural conditions under which certain glass-house crops are now grown, has been found to attack in a serious manner young Cucumbers.

Although the subject of inducing saprophytes to become parasites is one that has but little interest for the practical farmer or gardener, the case is different where the problem is attacked by the botanist from the other side. Reference has already been made to the result of "educating" Turnips and wheat to resist certain diseases, and we also know that certain varieties of Potato are much more resistant to the attack of the parasite that produces Potato disease than others; in fact, immunity to disease is a matter constantly in the minds of the raisers of new kinds of Potatoes.

Doubtless there is a great field open to scientific work in this direction, and it is a subject that interests the forester as well as the farmer and gardener. Although the task of producing a tree which shall prove resistant to the attack of some disease must proceed much more slowly than in the case of an annual or herbaceous plant, still it seems not to be beyond the bounds of possibility that one day we may find ourselves in possession of a variety of the common Larch which will prove immune to the attack of the well-known "Larch Canker."



The Victoria Water Lily.

The plant of the Great Amazon Water Lily, *Victoria Regia*, now growing in the Royal Botanic Society's gardens at Regent's Park, has opened its first flower, nearly a month earlier than usual. It appears to be an extremely vigorous specimen, for though grown from seed sown this year, it already possesses eight fully expanded leaves, each between 5ft and 6ft in diameter, and one leaf-bud now just unfolding, which, judging by its present dimensions, seems likely to largely exceed these figures. Last year's plant produced in all twenty-six flowers, a very fair record when the comparatively sunless summer is taken into consideration.

Schizostylis coccinea.

The figure on the opposite page represents two flowering racemes of this *Gladiolus*-like plant, and also shows that it makes an adaptable pot subject. The flowers are crimson-scarlet, appearing in September, October, and November. We have seen this plant flowering in rare style in the gardens at Killerton, Devon, where the bulbs had remained undisturbed in a moderately rich border within the garden walls, for years. It is well worthy of a trial in sheltered, sunny borders; or for pot culture, the roots being planted in spring. The plant is a native of South Africa, and is commonly called the Crimson Flag or Kaffir Lily.

Floral and Plant Arrangements.

In the carrying out of floral decorations the practice of using plants and cut blooms associated together is more general than formerly. Frequently cut blooms can be introduced into groups with great effect. *Liliums* cut before they are too far advanced last equally well in water as they will in pots, and can be cut with stems of suitable lengths for any particular position, and with an undergrowth of good foliage they can be used with greater effect than those in pots. Roses, too, now that we get them with such good stems, may be used with great advantage when cut, where it would be impossible to make the same effect with pot plants. Just now the large branches of hardy flower-in shrubs are introduced among pot plants in the large groups, and have a most imposing effect. Many other hardy flowers are used in a similar manner. The *Irises* arranged in large vases, each vase being filled with one distinct colour, make a fine effect among foliage plants. With a good foundation of ferns, and an edging of *Selaginella*, much of the colour may be made up of cut bloom in the foreground, especially in the long, arching spikes of *Odontoglossum crispum*, or good spikes of *Dendrobium*s, and other orchids may often be used where the plants would take up too much space. I find some florists cut up good foliage plants and use the tops or branches in preference to using the plants. Grasses and reeds are also much in demand for the same purpose. The fact that in exhibition groups cut flowers are not usually admissible in groups of plants arranged for effect leads many to overlook the advantage of combining the two when arranging groups for ordinary decoration. While undue crowding should always be avoided, there should always be sufficient green foliage to cover all pots, and even where pots have to be elevated some arrangement can be made to hide the pots. I find with the florists who carry out the best decorations a great point is made of always having a good supply of *Selaginella* and other dwarf plants for edging. *Ficus repens* is also extensively used. Those who supply this grow it on shelves where the long growths can hang down, or some grow it in suspended pots. *Ficus radicans*, the ordinary green form, is rapid in growth and very useful for some purposes, but unfortunately it does not stand so well as *repens*. *Asparagus Sprengeri* is also in demand, and cut sprays of this may often be used with advantage; stuck into the pots of other plants, it will keep fresh for a long time, and I have found it most serviceable where a pot could not be worked in.—EXPERT (in the "Horticultural Trade Journal.")

Prunus pseudo-cerasus var. *hortensis*.

There are many forms of this the well-known Japanese flowering Cherry, ranging from single to double forms. When in blossom these shrubs present a glorious sight, the branches sometimes being so completely covered with flowers as to cause them to bend under the floral weight. The blooms are large, pink to rose in colour, and appear with the bursting of the first leaves.—("Florists' Exchange.")

Bridal Flowers.

Orange blossoms are not the flowers that all brides wear when approaching the nuptial altar. In different lands various posies are supposed to be of good omen when a maid is beginning her wedded life. In Germany the bride wears Myrtle. In Italy, white Roses. Red Roses and Carnations crown the bride of Spain. The bride of Greece wears Vine leaves. Crowns of silver deck the brides of Norway, Sweden, and Servia. In Bavaria and Silesia pearls, glass, and gold wire are used. Orange blossoms were worn by Saracen brides, and since the time of the Crusades have been worn occasionally throughout Europe as the emblem of marriage. Finally French milliners introduced them definitely into the bridal outfit, and among French and English-speaking people the Orange blossom has become almost symbolical of marriage.

Spot Disease of the Violet.

This seems to be the chief trouble with greenhouse Violets in this State. The white spots are circular, usually about one-eighth of an inch in diameter. They seem to start as black specks, and on the stem this blackening is most pronounced. It is only rarely that the writer has found the *Alternaria* producing spores on these spots, which seems strange, since the disease often spreads rapidly in the beds. The trouble is likely to get started in the houses in the fall, before heat is turned on, especially if the grower is trying to cut down his coal bill. The character of the house, as to moisture, soil, &c., probably also plays a prominent part in the trouble. The disease is very often worst where Violets have been grown for some time. Growers generally pick off the diseased leaves as soon as they appear; in bad cases, however, this often means very severe pruning. Possibly the thorough removal of all diseased leaves when the plants are set out, followed with a treatment with Bordeaux mixture, might prove helpful in preventing the trouble. After the disease is thoroughly started, perhaps little can be expected from spraying.—(Professor G. P. Clinton, in Connecticut Experiment Station Report.)

Remedies for Red Spider.

An account of the red spider or spinning mite (*Tetranychus* and *Bityobia*) is given in the Board of Agriculture's leaflet, No. 41, and, as supplementing the information therein given, it is believed that the following remedies, if diligently practised, would be attended with success. As mixtures for spraying:—(1) Boil 6oz of black soap in 1 quart of water for 15 minutes, then add 4oz of white soap in powder and boil for 15 minutes. Next pour a quart of paraffin into a pail, add the above, and stir thoroughly. This "stock" might be allowed to stand for a day or two, being stirred or churned every now and then until a thick, buttery mass has resulted. For use, dilute with water according to the strength of the plants to be treated, thus: One part of the stock to ten parts of water for strong plants, one to fifteen for not so strong plants, and one to thirty-five for tender plants. It is safer to syringe afterwards with cold water. (2) a mixture of infusion of quassia chips and tobacco juice is also fairly satisfactory, but whatever spraying mixture is used—and a good douching with soap and water is often satisfactory—care must be taken that the application is thorough, and that the under sides of the leaves are not neglected. Sulphur mixed with water so that it can be painted on the hot-water pipes is often used in conservatories. In this use of sulphur care must be taken to maintain a proper moisture in the greenhouse. Apart from the danger of this treatment if the atmosphere be dry, one of the great causes of the prevalence and multiplication of red spider is overheating and over-dryness. Where forcing has to be done, and the temperature is therefore high, attention must be paid to keeping a moist atmosphere.



Schizostylis coccinea.

An autumn blooming S. African bulb with crimson flowers.



Tomatoes in the Open Air.

At this season a good deal of interest is attached to Tomato culture in the open air, and as we have had two bad seasons in succession for this crop, we may reasonably hope for more favourable conditions this year. The majority of plants have now been set out, as all growers are aware that it is useless to expect good results unless planting is done as early as it is safe to do it. The aim of the cultivator should then be to get three or four trusses of fruit set on each plant as quickly as possible, so that these shall have time to ripen before the cold, wet weather of autumn comes. Anything which tends to hasten the formation of the requisite quantity of fruit per plant is to be commended. In regard to this point, I have tried several experiments during the last two years, and the result is, I have come to the conclusion that allowing two main shoots to grow on each plant, is the best plan to follow in open-air culture, because by that method four trusses of fruit may be obtained more quickly than by following the orthodox plan of confining each plant to a single stem.

At the point where the first truss of flower is formed the plant usually makes a natural break, and sends out two shoots of almost equal vigour. If these are trained in, and all side shoots removed on both, four trusses of fruit are obtained two or three weeks earlier than when the single stem system is practised. And this gain often makes all the difference between just managing to get the fruit ripe, and having it in a green state at the end of the season. The plants I treated in this way last year ripened the whole of their fruits by the end of September. That, I think, was a fairly satisfactory test. If those who have not tried this plan with do so this year, I think they will be satisfied with the result.—ONWARDS.

Comparative Hardiness of Outdoor Peaches.

Though all kinds of Peaches are considered more or less hardy, it is not difficult to note the influence of cold spells of spring weather acting both on the flowers and leaves. There are not many seasons pass which do not put the Peach tree to a test more or less severe, and though the passing spring has not been so drastic in cold snaps as some which are still fresh in the memory, still there has been ample to illustrate the baneful effect of the ordeal, imposed mostly by cold easterly winds. Frosts, though they have been fairly frequent in low places, have not this season been severe enough to harm a Potato leaf or a Strawberry blossom during the period when they are exposed to these elements, and therefore Peaches growing against southern walls have not felt any ill effects from frost visits.

Cold winds, however, have been by no means absent, and the usual leaf blisters have been almost as common as in previous years, and it is in this respect where the hardiness of differing kinds is now apparent. The American Peaches, Alexander and Waterloo, are both hardy kinds, and another from the same source, Hale's Early, is none the less so; indeed, they have given us perhaps the least trouble of all established trees. Gladstone comes next, and is a variety both free and hardy, and a splendidly coloured autumn Peach. Royal George feels the cold rather keenly, and has required a deal of leaf-picking; so also has Violette Hâtive; the last-named seems to me the most delicate-leaved of all we have outdoors. Dymond is more hardy. So also is Nectarine Peach, Bellegarde, and Desse Tardive. Strange though it seems, Sea Eagle, usually so vigorous and unrelaxing in its effort to overload itself, has displayed much weakness in leaf troubles this year, the cold winds rendering necessary much leaf-picking, and Barrington is not much better in this respect. The last-named is a fine Peach where the soil is found to suit its constitution, but it so often fails to retain its fruits, even after they have grown to a good size. Some attribute this weakness to absence of lime in the soil, but in cases where others do remarkably well, Barrington will fail, or only prove a partial success.

When leaf blister continues until it has spread almost over the entire surface of the tree, there is much loss of vigour inflicted by the necessity of their removal. It occurs, too, at a most critical period of the fruiting time, and when those of delicate natures are made victims of this leaf trouble to a serious extent, it necessarily follows that the embryo fruits must suffer to some extent, and which they do, by making a halt and refusing to go further. Earlier in the season, when the trees are passing out of flower, the gardener's hopes are raised to a high pitch by the abundance of the promise. It is not an

uncommon experience when, after the trees pass out of bloom, and there are apparent evidences of a great yield, there is a dwindling down as the weeks follow each other and inspections are made. At the time of writing, though there has been a wonderful set of Peaches, there is a large percentage that are taking on this stationary attitude; but it is hoped there are ample and to spare even now. A few years since it was noteworthy how young yearling and two-year-old trees evaded the leaf blister, while older Peach trees became so badly crippled, though all occupied the same wall and shared the same means of protection.

It is not so apparent now; all show the same tendencies, and require individual treatment. Now the weather has become more summer-like there is a marked advance in new growth, and soon all trace of injury from this source will have disappeared. On light soils a mulch of strawy manure and a watering with clear or diluted farmyard liquids are of much service in swelling up the fruit to a normal size; but soil moisture, if derived only from clear water, is of real importance. Trees inclined to leaf vigour would only require clear water, and on strong soils nothing more would be required, even with fruitful trees, neither is mulching of the roots so strictly necessary, because clayey soils are made cold by shutting out the sun's influence with a strawy mulch. Though trees vary in their resistance of common blister, all are subject to curl, brought about by aphid attacks.—W. S.

What is the Cause of Mildew?

Every gardener is so well acquainted with the effects of this plant malady that description is entirely unnecessary. Not so with the real source of its origin. If one makes the random question, What is the cause of the appearance of mildew year after year in a certain place? a variety of plausible enough reasons is given. "Oh, it is altogether due to the damp and sour character of the soil," says one. "Nay, but to the cold, dry, penetrating nature of the east winds," says another; and a third ventures the assertion that the mischief is due to drought, and its effects upon root and foliage. Doubtless, every one of these views is resultant upon the particular observations of each. One probably found the mischief direct under the conditions from which he deduces his conclusions, and all are equally satisfied with their basis of reasoning. Mildews are fungi, and of parasitical propensities. What would be a boon to gardening is a discovery to overcome the latent, or active spores for that matter. I have no doubt whatever of the possibility of accomplishing this, for, a few years ago, I derived very marked results in the case of a Peach house, where one or two of the trees used to suffer badly from mildew. Whenever the buds began to break, I put a coating of about an inch of machine-mown grass over all the border. This was freshened up with a sprinkling occasionally throughout the season, with the result that scarcely a particle of the dreaded foe was to be seen.—H. C. D.

British Gardeners' Association.

With reference to the aspersive letter by "H. D., Warwick," on page 518 of last week's *Journal*, one must ask, "Why cannot the fact be recognised that the association has been definitely formed?" for, to insure its fullest success, unanimity is eminently essential. If every one of us who has a grievance or an imaginary one is going to ventilate it in vitriolic language, then farewell to all our hopes of elevating the calling of the horticulturist, for the labours of the leaders of the organisation will be largely nullified. It would surely be suicidal were an opposition party to arise and attempt to prejudice the association and its committee; but, happily, "H. D." is very much alone with his subversive antipathies. His reference to the "gigantic 'trusts' for the benefit of the friends of the 'inner circle'" is a calumnious statement, and we are to believe that if "H. D." and his coterie were on the officership, their doings would be absolutely unimpeachable in everybody's eyes. What a superbly mysterious destiny, that a committee of well-known horticulturists, representative of every department of horticulture, from all parts of the Home Counties, should be endowed with one chief aim, and that having for its ultimatum the formation of "a gigantic trust" for the benefit of the friends of the committee!

But while it would have been more satisfactory had the committee published the Prospectus before the Essex Hall meeting was held, one must remain satisfied with what has been proposed, and trust to the integrity of the various gentlemen who have been elected to manage affairs. Let envious, splenetic rallery cease, and let us substitute in its place a spirit of courageous determination to show to the world that we as gardeners, value ourselves, our services, and the honour of our ancient profession. Employers will speedily recognise improvement within the ranks, and shall agree to remunerate accordingly—let there be no fear of that.—RICHARD MORNINGSIDES.

The Culture of Hippeastrums.

(Continued from page 509.)

The practice of some growers is to dry the bulbs off completely, and then through exigencies of space, to store them on their sides pot on pot. Others work in the other direction by considerably reducing the amount of liquid, but not thoroughly drying off the bulb in the manner previously mentioned. The contention is that the bulb, having fleshy roots, and these being required for the succeeding year's growth, should be kept plump by the presence in a diminished way of moisture. In this, as in many other things, I myself prefer to effect a compromise by withholding the water supply as in the former case, but leaning slightly to the latter method by plunging the pots up to the rim in some moisture-retaining material, such as cocoa-nut fibre or coal ashes, which will keep the pots well soaked, and thus, by the diffusion of moisture, the ball of the plant will be prevented from becoming dust dry, whilst it will at the same time be much nearer to that state than to complete saturation. That this is an ideal method of storage cannot, I believe be gainsaid, and it will be found on turning out the bulbs in the spring, that they are firm and plump, and the fleshy roots are in a similar condition.

The time for repotting the plants is just before renewed root action occurs. In this the first necessity is to thoroughly soak the ball of soil by plenteous watering for two or three days. This will admit of the exhausted soil being more readily parted from the roots without damaging the latter. Having extracted all the old soil remove all dead roots, and those that have died back half way remove at that point, for they will eventually throw out rootlets. Then thoroughly wash the bulb, and having allowed it to dry potting may commence. The compost should consist of good fibrous loam, some fibrous peat, but not in a large quantity, some well decayed leaf soil which has passed through a half inch sieve with the small taken from it by means of a quarter inch, some broken cow or sheep manure, lime rubble treated in a similar manner to the leaf soil, and a fair quantity of broken charcoal, with a liberal amount of coarse sand. This should, when turned over three or four times, form a mixture into which, under the general laws of growth, it would appear an impossibility for the roots not to freely run.

Clean pots and crocks should be used, neglect in this matter being a violation of the very alphabet of garden principles. A goodly number of crocks are necessary, and over these place moss. Then put in a little of the compost, and press down with the hand. Hold the bulb in position, arranging the roots so that they will be pretty evenly distributed. Shake in some fine portion of the compost, and work in with the fingers. Then put more soil, and make firm with the hand until it reaches to within half an inch from the top of the pot. The bulb should not be wholly covered, the surface soil being but slightly above that part of the bulb which gives the largest circumference. Too firm potting is not to be recommended, for the roots being of a fleshy nature, will require more room and freedom than in the case of fine fibrous rooting plants.

After potting, watering must be carefully attended to, no great quantity being required until plenty of root action has taken place. If plunged and frequently syringed overhead, some time should elapse before they evince any desire to become acquainted with a water pot. When both subterranean and superterrene growth has received a good stimulus, remove the plants from the plunging material, and place in a light house boasting a temperature of 55deg to 60deg, with a healthy humid atmosphere, the chief part of the culture now being prudence in the admission of air, and the maintenance of an even balance in the way of water.

The two most important foes in point of destructive ability are mealy bug and the Eucharis mite. When the former hateful pest is at present no half measures should be used, for I am strongly of opinion that the policy of "keeping it down" incurs a far greater expense of labour and waste of plant energy than the more drastic but far more effectual method which I am going to give in detail. When the prevalence of the bug is, so to speak, in its infancy, it is not difficult by a severe measure of isolation and constant murderous attention to stop the evil, but when such a firm hold is established that the insects are to be found not only at the top, but at the roots of the bulb, then it is that the severest measures are justified.

The autumn undoubtedly affords the best opportunities for thoroughness in the cleansing process. Let the soil be well soaked to free it from the roots, and this, as well as the crocks, should be thrown on to a fire or put into an out of the way place where there is no possibility of the danger of re-introducing the pest. The pots also will need a good washing.

The dead roots having been cut away, all loose skin should be rubbed off the bulb, and it should then be thoroughly washed in a solution of strong, soapy water, into which has been poured the directed quantity of some proved insecticide. It will do no harm to use the liquid as hot as the hand can comfortably be borne in it. A somewhat stiff brush will be necessary to work the liquid well into the bulb, for the pest has what is to us a

pernicious and annoying, but to itself a highly defensive habit of lurking in any crack. When treated well in this manner cast the bulbs into some clear water for a few minutes. Plunge when dry in boxes of cocoa-nut fibre refuse, which should henceforth be kept in a "via media" between thorough dryness and a wet condition.

As the restarting time approaches new roots will be thrown out from the base of the bulb, and rootlets from the old roots. Encouraged by the condition afforded them by the moisture-retaining fibre these will quickly grow, so that an eye should be kept on them in order that they can be potted up early in a compost such as previously detailed. The after culture will be as usual, with the difference that an eye of vigilance should be kept for the possible reappearance of the mealy pest.

The Eucharis mite may be dealt with in a similar manner, but this destructive microscopic pest thrives in a soil soured by negligent watering, so that the opposite happy condition will tend largely to its abolition.—WM. ROWLES.

The Garden Village of the Small Holdings Association.*

(Continued from page 509.)

The introduction of the motor has brought our distant villages nearer to the towns and the railways and to each other, and the motor system will, in my judgment, play an important part in the establishment of garden villages. Our experience thus far has shown me that there are thousands of country-bred townsmen who are anxious to change their occupation for rural life, although on the basis of our own applicants it is probable that not more than 10 per cent. have the means or capacity to make a start on the purchase system. Of the 1,200 applications which were made to us in 1903, a small proportion consisted of those impossible persons, city shopkeepers' assistants and clerks, who have no experience of the country or of any rural occupation. The remainder were chiefly composed of more or less practical men, the majority of whom possessed insufficient means. Of the suitable men, a considerable number were prepared, after making their purchase—for many, indeed, could not be accommodated—to continue wholly or in part in their present occupations until such time as the land was ready for them to devote their whole attention to its cultivation.

These men could see their way, and were prepared, as skilled mechanics, artisans, or pensioners, to combine the one occupation with the other so long as they found it essential. Of one fact I am assured—that the rural labourer, with very few exceptions, is not the man who will take up land, allotments excepted, under the hire or purchase system, except in a few particular districts; but that the man upon whom we may depend is the country-bred townsman, who has never lost his attachment to the farm, and who has acquired sufficient business experience to enable him to combine with the labour of cultivation the capacity to sell his produce.

My own idea of the Garden Village is a compact and not too extensive property situated in a district in which agriculture is not highly prosperous, and in which the population chiefly depend for their food upon foreign produce. The soil should be substantial—preferably poor, if comparatively stiff or heavy, than light—such as sand, gravel, or chalk. It should be sufficiently well supplied with water, adjacent to the village, church, chapel, and school; drained; its fields conveniently divided by fences and ditches, and all accessible from good roads. The houses should be at once substantial, simple, artistic—for most men take a pride in a prettily constructed home—and conveniently equipped for warmth, cooking, and all necessary domestic purposes. The arrangement of the land, whether adjacent to the house or not, is a matter for the decision of the occupier, and will be controlled by his system of culture; but in any case he should provide a garden of sufficient size to supply his own table, and this should embrace a poultry yard, this form of live stock being supplemented by a breeding sow or two, and, in the absence of a cow, with one or two milch goats for the provision of milk for his children. A common or club room should be established for the use of the whole colony, and in some way supplied with newspapers, especially those representing farming and gardening, with technical books, some innocent games, and a few works of reference.

There should be a club or co-operative society, controlled by a committee elected by the colonists themselves, and intended for the purchase and supply of food—whether for the home or the stock—manure, seeds, implements, and utensils, coals, and the provision of the more costly articles of farm equipment, to be used in turn by those requiring them. The committee, too, should be charged with the conduct of the repair of the private roads, of the ditches and hedges adjacent to those roads, and they should represent the whole body where cases of appeal are

* Manchester Statistical Society; read by James Long, April 13th, 1904.

essential against local rates, and in such instances as may occur in which the well-being of the colony is threatened. Little difficulties which may cause personal inconvenience and disagreement should be referred to this committee. In our own case, should questions arise between the colonists and the directors, it has been determined by our articles to refer them for settlement to our trustees—well-known, impartial public men of great experience—Sir James Blyth, Bart., and Mr. I. H. Whitley, M.P.

The Cudworth Colony is an experiment, but it has succeeded—if we may be guided by our present results—beyond expectation. Many estates were inspected, but time and patience were and are needed in finding the most suitable and in guarding against ulterior difficulties. I am satisfied, however, that there are many suitable estates in the market at prices within the reach of our organisation; but for a time at least I believe that a colony should not be too far from either railway or town, inasmuch as buyers still fear distance; that fear, however, will be dispelled by experience. Proximity to a town means greater cost, not only in the purchase of the land, but for the labour necessary for building purposes, as well as higher rates. On the other hand, distance from a town means cheaper labour, lower rents, reduced cost of the land, and higher cost for the haulage of the materials necessary either for building purposes or for the feeding of the stock and the soil.

Most of the difficulties, however, which exist in the last-named districts will be cured by the aid of co-operation, and the improvement and reduction in the cost of motors intended for haulage purposes in particular will, I believe, enable any colony to obtain all its requirements with speed and certainty at such a diminished cost, that local railway stations will be abandoned for the towns, and goods brought direct from manufacturers instead of being first despatched by rail and then hauled by waggon from the station. As I write, heavy goods for the colony are being delivered by motor from a distant town, not only superseding the railway and horse haulage from the station, but saving at least three days in time. Where the members of a colony, consisting of forty or fifty families producing goods for the market, combine for the purpose, they will be able, if I am not mistaken, to place their goods on the local or city market a great deal more quickly and with less difficulty and cost than the foreigner, of whom we hear so many complaints.

It is often suggested that the life of the small owner of land is one of considerable hardship; that his existence is a burden, and that it is undesirable to increase the small-ownership system; but, as I know from experience on the Continent, he is precisely the person who is unwilling to exchange his lot for the more highly paid occupations in which town workers are engaged. The small landowner is the backbone of all the leading agricultural nations in Europe, and he sticks to the land, not because of the large profits with which it provides him, but because it is his own. It is desirable that there should be such a class, and it happens that the newer conditions of life not only demand its institution, but provide methods for its support without which small farming might not succeed. Co-operation, which has raised Denmark to the position of the richest country in the world, next to our own, for its size, is the lever which is employed by peasant owners in every country but Britain. Its practical absence here is owing to the non-existence of the men for whom it was primarily designed, and in consequence there are almost no village banks, mutual insurance societies, or local cattle breeding clubs, nor such other organisations as the Swiss, the Danes, the Germans, and even the Luxemburgers have established for national utilitarian purposes.

I have no doubt that some of the many who are constantly asserting that small farming will not pay have commenced to believe their assertions to be true, they have been made so often; but I would point out that the profits of the soil depend chiefly upon labour and skill, and both are usually rewarded. There are many thousands of acres of land within sight of St. Paul's Cathedral which do not return a gross profit of more than £5 per acre per annum, and yet within the same limited area there are market gardeners and nurserymen—the majority of whom are humbly born and imperfectly educated, but who by experience are accomplished and skilled men—who are able to realise from £100 to £1,000 per acre for their produce, in large part, it is true, by the aid of glass. If this is not farming in the accepted sense of the word, it is crop production, and the margin between the figures which I have suggested is just as wide and no wider than the capacity which exists between man and man.

In that part of Surrey in which the Cudworth Colony is situated, the soil is not properly tilled: practical farming is at a discount, and the land is becoming more and more extensively occupied by wealthy residents, many of whom object to the disturbance of their equanimity or the spoliation of their view of the landscape by the introduction of a garden village or a series of small holdings. The poorer members of our city populations, as in London, are being gradually pushed north-east on to the clay of Essex, while their wealthier neighbours are enabled to pitch their tents upon the gravels and sands and the chalk hills of Surrey in the South. The land laws enable owners of land adjacent to a population, whatever its position, to obtain

their own figure from the public, and to sell sites on the healthier soils I have named at prodigious prices: thus the natural tendency is to drive the working classes to the less healthy land.

The time is arriving when it will not be possible for any individual to decide where hundreds of his neighbours shall or shall not live, nor what they shall pay for the privilege of living at all. When public authorities do their duty, they will take care that all towns and villages are of the garden type; that houses are not to be crowded together like the cells of bees, but that to every home there shall be a sufficient area of land, abundant width to every street, and trees to contribute to that comfort, that beauty, and that form of health which is associated with Nature and her ways. In some parts of Surrey and elsewhere, where the country is both beautiful and healthy, the workers are forbidden to live, for the owners not only dominate the position, but they claim the air and the landscape, and they would also claim the heavens above them if this were possible.

(To be continued.)

Cold Storage of Apples.

The investigations which are being carried out by the United States Department of Agriculture in regard to the cold storage of fruit and vegetables have been referred to in previous numbers of this Journal.* A report has now been issued on the cold storage of Apples, a practice which is largely adopted in the United States and Canada, in order to extend the period during which the Apples can be kept in good condition. The investigations tend to show that an Apple should be fully grown and highly coloured when picked, in order to give it the best keeping and commercial qualities. An exception appears to exist in the case of certain varieties from rapidly growing young trees. Such fruit is likely to be overgrown, and the Apples may need picking before they reach their highest colour and full development.

Uniform colour may be secured by pruning, to let the sunlight into the tree, by checking the growth of the tree early in the autumn, and by picking the trees over several times, taking the Apples in each picking that have attained the desired degree of colour and size. Apples should be stored as quickly as possible after picking. The fruit ripens rapidly after it is picked, especially if the weather is hot. The ripening, which takes place between the time of picking and storage, shortens the life of the fruit in the storage house; but if the weather is cool enough to prevent after-ripening, a delay in the storage of the fruit may not be injurious to its keeping quality. The investigations indicate that the ripening processes are delayed more in a temperature of 31deg to 32deg Fahr. than in 35deg to 36deg Fahr.

The Apple keeps longer in the lower temperature, moulds and other fungoid growths are prevented to a greater extent, the aroma, flavour, and other characteristics of the fruit are fully as good, and when removed from storage it remains in good condition for a longer period. It was found that the wrapping of fruit in paper also retarded the ripening process, and prevented the spread of fungous spores from decayed fruit. Apples should be in a firm condition, and not over-ripe, when taken from storage, and then should be kept in a cool place.

In some experiments† which were carried out in England by the Kent Technical Instruction Committee, it was found that the leading dessert Apples could be kept in good condition for three to four months, and in some cases much longer, in a cold store, a temperature of 36deg Fahr. being, it was stated, found most suitable. Some experiments carried out by the Ontario Agricultural College‡, however, support the conclusions of the United States Department, as it was found in the Canadian investigations that Apples kept better at a temperature of 31deg Fahr. than at a higher temperature, and also when wrapped singly in paper and packed in shallow boxes holding not more than a bushel.

Messrs. Webb's Cinerarias.

What are termed "strains" of the leading florists' flowers are sufficiently numerous, and it becomes a matter of difficulty to decide what is best. But really there is little to choose between the strains from the leading firms. Messrs. Webb and Sons, Wordsley, Stourbridge, presented their superb Cinerarias at the Temple Show, and from the photograph on page 543, the floriferous character and the free-growing, bushy habit of the plants may be estimated. The seeds are saved from plants of the highest standard of merit, and the range of good colours is varied and pleasing.

* "Journal of the Board of Agriculture," Vol. IX., Mar., 1903, p. 516 Vol. X., Dec. 1903, p. 398.

† "Journal of the Board of Agriculture," Vol. VI., June, 1899, p. 86.

‡ Ontario Agricultural College, Report, 1902.

Garden History of the Canna.

Probably no ornamental plant has been so profoundly modified within the experience of the younger generation of horticulturists than the Canna. A few species, mostly natives of widely separated tropical countries, were known to gardeners early in last century. About 1835, owing to the increasing development of greenhouse structures, the Canna began to attract attention as a useful plant for sub-tropical gardening in favourable locations on account of its massive and luxuriant foliage, the flowers being an inconspicuous feature at the time. In 1848 a race of hybrids was produced by crossing *Canna nepalensis* with other species, probably *C. glauca*. Among the number an improved strain known as *C. Annei* resulted, which gained high favour, and was much planted in parks and gardens as late as 1870, and is occasionally still seen about old-fashioned places. The descendants of *C. Annei*, variously intercrossed with other varieties and species, formed the staple of the seedling varieties we grew with such solicitous care in our boyish days. We can well recall the interest centred on each mammoth leaf as it slowly unfolded, until late in the season the narrow, dull red flowers came out.

In 1863, however, the first really large flowering hybrids were produced by crossing a dwarf species from Costa Rica,

were developed from *C. indica*, a brilliant red and yellow flowered species, variously crossed with *iridiflora* hybrids.

Closely following Mme. Crozy, the American seedling, Star of '91, was put on the market, and bade fair to obtain great popularity owing to its extremely compact habit, although the flower was inferior to Mme. Crozy in finish. A defect in constitution rendered its rhizomes very difficult to keep over winter, and it went promptly out of cultivation. The year 1893 witnessed the introduction of such meritorious varieties as Alphonse Bouvier, Florence Vaughan, J. D. Cabos, and others which still hold a firm place in public esteem. Then followed a perfect flood of new sorts, many being developed in this country as well as coming from abroad. Very few have survived the criticism of the public, which has become very exacting. Queen Charlotte, a seedling of Mme. Crozy, raised in a German nursery, introduced a new feature in coloration, extending the narrow golden band on the flowers of the Crozy type into a broad mottled margin. The type is very popular still, but Queen Charlotte is being superseded by higher coloured varieties, though it is still listed.

In 1896 some remarkable hybrids of *Canna flaccida*, a native species with large but flimsy yellow blooms, were sent out by Italian cultivators. They produced the largest flowers that have yet been achieved. It was at first expected that these new "orchid-flowering" varieties would drive all others out of cultivation, but on trial the large and showy blooms were found



Messrs. Webb's Cinerarias.

C. Warszewiczii with *C. iridiflora*, a tall Peruvian species, bearing drooping spikes of comparatively large, rose-coloured flowers. The varieties resulting from this union were introduced under the names of *C. Ehemanni*, Noutoni, alba rosea grandiflora, &c. They have very handsome blooms, ranging from deep crimson to rosy white. *C. Ehemanni*, bearing rose-coloured, Oleander-like blossoms on drooping spikes, soon became a prime favourite in this country, and was most extensively planted. While very stately and handsome it was neither free enough nor sufficiently early in coming into bloom to maintain interest, and was falling into disuse about 1883, when it was rumoured that a wonderful strain of dwarf "Gladiolus-flowered" Cannas had been produced by a cultivator in the south of France.

Soon new varieties, filling in a tolerable manner the anticipations of these reports, began to come over. They were mostly mottled yellow or flaming scarlet in colour, with wide but irregularly-formed blooms. They were indeed great improvements in the dwarf-growing section, and met with increasing popularity. One of these early ones, *Enfant de Cahors*, mottled red and yellow, has not been exceeded in brilliancy by any subsequent introduction, but the blooms were too small, and it is now forgotten. With the introduction of the ever-popular Mme. Crozy, about 1890, the Canna at once challenged attention as a really important plant for bedding and summer decoration. The Messrs. Crozy have been very chary of information concerning the origin of the Cannas they send out so profusely, but it is generally supposed that they

to be too fragile for our climate, and were not produced in sufficient freedom, until late in the season. A few varieties, such as the gigantic *Allemania*, and the deep yellow *Burbank*, produced by the noted California originator of that name, are still much prized for their massive effect. The latest development of this interesting group has been the production of two remarkable hybrids, both combining the profuse floriferousness of the French strain with the imposing grandeur of the *flaccida* type. Mrs. Kate Gray was raised by a California florist, Edward Gray, and is said to represent a cross between Mme. Crozy and *Italia*. It is very promising, having *Musa*-like foliage, and large orange flowers marked with yellow, produced as freely as the dwarf sorts. *Pennsylvania* will, I think, prove even more useful, as its immense and durable blooms are clear bright scarlet, without any lighter markings whatever. It was raised in Tennessee by John A. Kemp from seeds of *Duke of Marlborough*, a dark crimson dwarf bedding sort, containing blood of *C. iridiflora* and *Parthenope*, one of the finest *flaccida* hybrids.

In size, vigour, earliness, and profuseness of bloom, these new crosses leave little to be desired, but it is probable that still greater substance of flower will yet be bred into dilute *flaccida* hybrids of this type, though the varieties mentioned are greatly superior to the Italian sorts hitherto planted. The modern ideal of a bedding Canna is very exacting, and practical excellence depends on a number of points. The plant, whatever its height, must grow compactly, and have tough, heavy foliage. The flower trusses must be thrown well above, and

be carried at an even height. The blooms must be early and continuous, and the florets be shed as fast as they wither. Moreover, it must produce a healthy tuber, or rhizome, that can be carried over without loss. That these various characteristics can be combined, together with an extended range of colour, from almost white, through every shade of yellow, pink, scarlet, crimson, to darkest maroon, and even shades of purple, with an infinite range of markings, we have ample evidence in some of the new varieties produced by A. Wintzer, of West Grove, Pa. It has been an accepted idea that the best Cannas for American planting are and will continue to be produced in this country, and it is possible that a further combination of the various useful types now in cultivation will result in varieties of undreamed-of value.—W. VAN FLEET (in "American Florist.")

Societies.

R.H.S., Scientific Committee, June 14th.

Present: Dr. Masters, F.R.S. (in the chair); Messrs. Shea, Worsdell, Saunders; Drs. Cooke and Rendle; Revs. W. Wilks and G. Henslow, Hon. Sec.

Death of R. McLachlan, Esq., F.R.S.—Dr. Masters made a few remarks upon the loss to science occasioned by the death of this eminent member of the Scientific Committee. He was one of the very few left of the earliest members of it; and until failing health prevented him from being so, he was a most regular attendant at its meetings. He was always most courteous and willing to give his assistance whenever questions arose in the department of entomology, in which he was an expert; the suggestions he made for the treatment of insect attacks were marked by caution and sound judgment.

Oak-tree "Spangles."—To an enquiry from Dr. P. Parnell, Streatham Hill, as to the origin of these galls. Mr. Saunders supplied the following life history:—"These are formed by the grubs of one of the many kinds of gall-flies which infest the Oak. Most of the species, this one (*Spathogaster baccarum*) among the number, do not complete their life cycle until they have gone through two generations; this peculiarity is generally spoken of as 'the alternation of generations.' In the case of the species which forms the galls sent, the flies which are hatched from them are of both sexes; and after pairing, the females pierce the under sides of the leaves and lay their eggs just below the surface. The grubs hatched from these do not form spherical galls, as the grubs of the last generation did, but make the little flat brown galls which are so common on the under sides of Oak leaves and which are commonly known as 'spangles.' The flies from these galls emerge in the following spring, but, strange to say, they are quite unlike the flies of the previous generation which laid the eggs, in appearance; and there are no males, only females. These 'parthenogenetic females' for many years were known as *Neuroterus lenticularis*, and were considered to be a distinct species; they lay their eggs more commonly on the male flowers of the Oak, when they are known as "currant galls" on account of their resemblance to a small bunch of Currants; but they often lay them on the leaves. The life cycle is now complete, and begins again as soon as the flies emerge. In some species the life history of the two generations is even more different than that just described; the sexua' generation laying its eggs on the roots of the trees, and in due time galls are formed. The asexual generation which emerges from these galls are wingless, crawl up the stems and branches of the trees, and lay their eggs generally in the terminal bud of the shoots; the galls there formed are the well known "Oak-apples" the flies from which are of both sexes; the males are winged, but the females have only rudimentary ones, or are wingless. The only means which I can suggest for preventing the Oaks from being attacked by the *Spathogaster baccarum*, is by destroying the galls, this would be almost impossible in the case of the galls formed in the spring; but the second generation of galls which remain on the leaves till after they have fallen, may easily be destroyed by collecting the fallen leaves and burning them. If this was done thoroughly, there would be a wholesale destruction of this insect, and you would find that very few attacked the leaves the following spring."

Carrots destroyed by insects.—In reply to a letter from Mr. Bullock, Godalming, Mr. Saunders writes as follows:—"The Carrots are attacked by the millipedes (*Polydesmus complanatus*), 'the flattened millipede.' It is a very annoying pest and one which is very difficult to destroy, as these creatures when feeding at the roots of a plant cannot be killed by means of an insecticide, without using it of such a strength that it would injure the latter; but watering copiously with a strong solution of nitrate of soda or common salt might be tried. They may be often caught by burying small slices of Turnips, Mangolds, or Vegetable Marrow near the plant just below the surface of the soil. A small skewer of wood should be stuck into each slice, this will show where each bait is buried, and also render handling them easier. These traps should be examined every morning and any millipedes feeding on them picked off, and the traps

replaced." Another method described by Mr. Shea, is to make a funnel-shaped vessel with perforations, filling this with pieces of vegetables and burying it. It can then be lifted and the contents thrown out and the grubs killed.

Hybrid Carnations.—Mr. Douglas sent fine specimens with dark crimson flowers of a hybrid between the Urial Pike Carnation and Sweet William; also the Pink, hybridus floribundus, suggesting that it may be identical with the first hybrid artificially made that is known, by Mr. Fairchild. (See Journal of R.H.S., xxiv., page 56).

Sawdust.—An enquiry from Mr. Allen, Putney Hill, as to whether it can be utilised, the general opinion was that it is worse than useless, but it becomes valuable if burnt. It was suggested to burn it mixed with vegetable rubbish, then to sift the ashes and mix them with sifted earth. This has been proved by experience to be a very valuable top-dressing.

Scotch Firs diseased.—Specimens received from Mrs. R. D. Turner, Ightham, Kent, were examined by Mr. Newstead, who reports:—"The insect is *Chermes pini*, an aphid; the white flocculent matter covers the adult apterous female, and her yellowish brown pedunculated eggs. Softsoap and quassia is a very good insecticide for this pest; but the paraffin emulsion will give the best results if applied before the trees have made young growths."

Picea aganensis.—Dr. Masters exhibited specimens sent by Mr. Moore of Glasnevin, showing the apex of the yellow male flower occupied by bracts and ovuliferous scales of the usual purple colour. The foliage, leaves, perular scales, and stamens were seen to be in continuous sequence, and the bracts of the female portion were also continuous with the foliage leaves. The ovules were not fully developed.

Hybrid Clematis.—Dr. Masters also showed flowers of a hybrid Clematis raised between *C. coccinea* which has ovoid tubular scarlet flowers, and *C. lanuginosa*, which bears much larger, flat, lavender-coloured flowers. The flowers, though in a dishevelled condition, showed clear indications of their mixed parentage both in colour and form. They were received from Prof. Francesco Marchi of Mantua.

Grand Yorkshire Gala.

(Continued from page 523.)

Miscellaneous and Trade Exhibits.

Messrs. Clibran and Son, of Altrincham and Manchester, were represented by a group chiefly composed of novelties. These comprised the "dwarf Crimson Rambler," that is, Madame Levavasseur, which is given the foregoing popular name for its descriptive purpose. This Rose only grows 1½ ft to 2 ft high, and bears rich crimson clusters like *C. Rambler*. They also had the new *Nephrolepis Pieroni*, which we thoroughly commend for its decorative effectiveness. It came from the United States, and to maintain it in character requires rich feeding and a warm temperature. We would also name *Ficus Parcelli*, *Clerodendron fallax*, *Dracæna Mayi*, *Cyperus alternifolius variegata* (creamy coloured throughout), *Dracæna Doucetti*, of which Clibrans have the largest collection in the country. It is a fine thing, and will stand draughts and the vicissitudes of a dwelling house or lobbies. Malmaison Carnations were also well staged.

Messrs. Kent and Brydon, Darlington, were forward with hardy *Rhododendrons*, *Nandina domestica* (a graceful hardy shrub), standard Sweet Bays, *Hydrangea paniculata grandiflora*, *Liliums*, *Verbena Miss Willmott* and *V. King of Scarlets*, *Crassula coccinea*, "Geranium" Achievement—Ivy-leaved x zonal—with warm rose-salmon flowers. Their *Aucuba limbata*, *Abies pygma*, *Aralia variegata*, and *Abies pungens glauca* Kosteri were each excellent, and well deserve attention.

A group of Carnations, *Gloxinias*, &c., came from Messrs. Mack and Miln, of Darlington; and Mr. George Boyes, of Aylstone Nurseries, Leicester, had a group of his pot tree Carnations in many varieties. He also had a table of their flowers arranged in glasses over a white ground.

Mr. A. F. Dutton, The Nurseries, Bexley Heath, London, was very strong in tree Carnations, of which he has now a large stock, yet we believe his energies are taxed to produce sufficient plants to meet the constant demand. Without a doubt he understands the culture to perfection, for finer flowers would be hard to find. We would name *Royalty*, *Floriania*, *Mrs. T. W. Lawson*, *Fair Maid*, *Enchantress*, and *Melba* as his best carmines and pinks; *Harry Fenn* as a rich dark crimson; and *Norway* as a white.

Messrs. Cutbush and Son, Highgate, N., staged Carnations and hardy herbaceous and alpine plants, with Water Lilies—in trays. Their hardy plant department is now extensive, and they have an excellent head of the department, so that novelties as well as the older favourites are to be seen here. *Dianthus Napoleon III.* was very good; the new *Conandron ramondiioides* ought not to be missed by lovers of alpine; *Cypripedium spectabile*, *Orchis foliosa*, *C. acaule*, and *Sarracenia rubra* are not too common in gardens; and what is statelier or deserves more

care than the noble Eremuri? Each of these we noted, and a host of other gems were on view. Lastly, their Calla Elliottiana, Verbena Maiden's Blush, and V. Princess of Wales (both new), and uncommonly sweet Lantanas in named kinds, with Dorothy Perkins Rose, were admirable. They occupied the whole length of a table in one of the largest tents.

Pæonies and Pyrethrums in glorious splendour from Messrs. R. H. Bath, Ltd., Wisbech, were admirable, and exceedingly bright and fresh. Unfortunately at the time of making our report none of the varieties were named. They had Aquilegias, Inula glandulosa, Lilium pyrenaicum, Foxgloves and Campanulas in the back row.

Messrs. W. and J. Brown, Peterboro', had a group similar to that reported by us at the Temple Show. It included Liberty Rose, Heliotrope Lord Roberts, Lady Roberts H.T. Rose, Saxifraga pyramidalis, and the Coronation Marguerite.

Dicksons, of Chester, brought up a big display of cut hardy flowers, in which we would note Campanula glomerata, Sparaxis tricolor, S. Lina, S. grandiflora, S. Bellevue, &c., and they had also Ixias and Liliums, particularly beautiful being L. rubellum. Their double purple Hesperis is handsome; also Arundo Donax fol. var., Anthericum Liliago, Barbarea vulgaris fl.-pl., Iris Susianus, Primula Sikkimensis, and Allium acuminatum (rose-mauve) may each be recalled. Eremuri, Pæonies, Pyrethrums, and Delphiniums in the last-named kinds were here.

Messrs. Paul and Son, Cheshunt, had a collection of Pæonies, some of which we named in the report of the R.H.S. Drill Hall meeting. At York they also made a fine contribution to the cut Rose display.

Messrs. Hewitt and Co., Birmingham, contributed hardy cut flowers, which were attractive in themselves, but the cottagers' style of arrangement is surely not worthy of a firm of floral decorators. A number of the seasonable decorative subjects were shown, but there were no novelties unless we include a bunch of a blush Oriental Poppy. Their table of tree Carnations, however, was one of the sweetest exhibits in the show, and was quite exemplary in the tastefulness of its arrangement. Dark blue velvet was used to drape the table, and the Carnations, representing eight leading sorts, were set in huge and charming bunches in long-stemmed glass vases. Asparagus myriocladus and A. Sprengeri was used beneath the flowers.

Mr. J. Wood, Kirkstall, Leeds, sent an exhibit of alpines set in rockwork, but it was a poor attempt, too much of the leaf soil showing. The stand had some rare plants, as Omphalodes Lucilliae, Campanula alpina, Azalea rosae-flora, and the double red variety of the Welsh Poppy.

Mr. Henry Brownhill, seed stores, Sale, contributed his new hybrid Chrysanthemums, conspicuous for their large flowers, their vigour, and brilliant colours. They were in shades of rich yellow, sulphur, primrose, ivory, and cream; undoubtedly they are acquisitions.

Messrs. Richard Smith and Co., Worcester, had a stand of hardy cut flowers in bunches. We were able to note some splendid bearded Irises, also Incarvillea Delavayi, Mertensia virginica, Inula glandulosa, Campanula collina (rich violet), Gillenia trifoliata, Lychnis splendens plena, Delphinium atro-purpurea, D. nudicaule, Henchera brizoides in fine form, together with many other seasonable flowers. Messrs. Smith also had a group of stove and greenhouse foliage plants on the grass, but the arrangement was far from inciting one's admiration. Their trained balloon Clematises were again on view, but we think that the public would be better satisfied to have these lovely flowering plants grown naturally, or, like some of the Rambler Roses, drooping from vertical stakes. When the balloon plants are not too much tied in, they are, of course, very pleasing. The various Japanese Maples, decorative Pelargoniums, and Bamboos, &c., were exceedingly interesting.

Walshaw and Son, Scarborough, had a collection of "market" flowering plants, including a fine batch of Miss Willmott Verbena and Malmaison Carnations.

Messrs. Charlesworth and Co., Bradford, had Cattleya Empress Frederick, L.-c. Canhamiana Excelsior, L.-c. Fascinator, and other choice hybrids.

Mr. A. Edwards, Arnold, Notts, had his "Edwardian" table and room receptacles for flowers and plants. The I.V.O. Kill-all Chemical Company, Leeds, staged a new liquid ant and insect destroyer.

Medals to Trade Displays.

Premier Award.—Messrs. W. Cutbush and Son, Highgate.

Gold.—Messrs. W. Cutbush and Son, Highgate; Messrs. Charlesworth and Co., Heaton, Bradford; Messrs. Kent and Brydon, Darlington; Messrs. Richard Smith and Co., Worcester.

R.H.S. Silver Flora.—Messrs. Walshaw and Son, Scarborough; Messrs. Dicksons, Chester; Messrs. Paul and Son, Cheshunt; Messrs. R. H. Bath, Ltd., Wisbech.

R.H.S. Silver Banksian.—Mr. R. Sydenham, Birmingham; Messrs. Clibau and Son, Altrincham; Mr. A. F. Dutton, Bexley Heath; Messrs. Hewitt and Son, Soihull.

Award of Merit.—Messrs. W. and J. Brown, Peterborough.

Royal Agricultural, Park Royal, June 21st to 25th.

The five days' exhibition of the Royal Agricultural Society of England opened on Tuesday last at the new permanent grounds, named Park Royal, west of London, and the weather was highly favourable. This is the second show held in these grounds, and though the meteorological conditions last year were ideal, the loss from meagre attendance was very great. From what we saw and heard, it is to be feared that the show this year, notwithstanding the many innovations and displays to entice the public hither, will again result in a loss. Still, one must hope for the best, and wait for the facts.

The exhibition was again full of interest, and quite a number of horticultural displays were forward. Messrs. Sutton and Sons, Reading, had a varied exhibit, comprising agricultural and horticultural subjects of special interest. Their Discovery Potato in pots was undoubtedly vigorous, and among culinary Peas there were Eureka, with a good crop of long, even, well-filled pods; also Duchess of York, Green Gem (dwarf), Excelsior, Al (tall-growing and well-filled), and Empress of India (a taller-growing variety, which crops well). Their Tomatoes included Peachblow, Satisfaction, Golden Nugget, and Best of All; while the case of Gloxinia plants were evidence of the highest culture of an unexcelled strain.

Messrs. Carter and Co., High Holborn, presented Verbena Miss Willmott and V. Scarlet King; also Kalosanthes coccinea, Gloxinias, fern-balls, and various grasses.

A collection of vegetables was sent by Messrs. Webb and Sons, Wordsley, Stourbridge, comprising their Perfection Pea, Reliance Beet, Early Purple-top Turnip, Stourbridge Marrow, Defiance and Summerhill Lettuces. They also had "Stanley" and "Excelsior" Gloxinias, hardy flowers, samples of lawn grasses, and the new Coronation Tomatoes.

Some useful decorative shrubs, together with Hydrangeas, Fuchsias, Ivy-leaved Pelargoniums, and the double golden Marguerite, came from Messrs. Dicksons, of Chester. Messrs. Dickson, Brown, and Tait, Manchester, contributed Crimson Rambler Roses, Spanish Irises and Pæonies, besides a fine collection of Potatoes.

Rustic work in the form of arbours, seats, and summer-houses came from Messrs. Inmans and Co., Stretford, Manchester, and these were most elegantly finished in all respects, having coloured glass windows in most cases. Messrs. Henry and Julius Caesar, Knutsford, Cheshire, and King's Cross, London, also had an excellent display to choose from. Another exhibit came from Mr. J. Wandby, Frizinghall Rustic Works, Bradford. Mr. John P. White, the Pyghtle Works, Bedford, had garden seats, summer-houses made of oak and thatched with heather, and really beautiful varnished oak trellis-work—most elegant and dainty for garden fencing, and strong withal. Mr. C. W. Riley, Herne Hill, S.E., was also represented by rustic work.

Messrs. Liberty and Co., Regent Street, London, have lately developed a branch of their extensive business, and this branch is devoted to "terra-cotta garden pottery," and of this material they manufacture pillars for pergolas, vases, and tazzas, balustradings, sundials, edging tiles, garden seats, and quite a number of other things, each admirable for various uses. The exhibit was well set out, and quite extensive.

Messrs. Skinner, Board, and Co., Bristol, showed their wire-tension system of glazing. Messrs. C. and W. Buswell, Victoria Works, Torquay, sent garden tents, garden seats, tables, and pretty hammocks. Messrs. Barford and Perkins, Peterborough, had garden rollers. Messrs. Headly and Edwards, Ltd., engineers, Cambridge, likewise had garden seats, tents, hose, and wire-work arches.

Messrs. Merryweather, Ltd., of Greenwich Road, London, whose specialities are the fire protection of mansions, undertaking the water supply also of mansions, and, lastly, the electric lighting of houses, were here represented. They staged numerous spraying appliances. Messrs. H. J. and C. Major, Ltd., Bridgwater, Somerset, had a large selection of machine-pressed tiles for roofing purposes.

Greenhouses and frames suitable for gardens of all classes came from Mr. Duncan Tucker, of Tottenham, and the quality, design, and finish of these was such as to gain a gold medal at the late Regent's Park Show (Royal Botanic Society). Messrs. Ransomes, Sims, and Jefferies, Ltd., Ipswich, staged their lawnmowers, as did Messrs. T. Green and Son, Ltd., Leeds and London, who also had garden vases of very pretty design.

Messrs. W. Horne and Sons, Cliffe, near Rochester, Kent, had Potatoes Northern Star and Eldorado in pots, and they also staged Asparagus and fruiting dwarf Apples. Messrs. Dickson and Robinson, Manchester, staged hardy flowers, lawn grasses, Potatoes, and vegetables; and Messrs. Gartons, of Warrington, were likewise represented in these lines.

The best quality wood was exhibited by English Bros., Ltd., timber importers, Peterborough. Their manufactured gates,

hurdles, &c., were so strong and substantial as to seem destined to last for ever. Messrs. Daniel de Pass, 1, Fenchurch Buildings, E.C., had samples of their pure guano and other fertilisers. Messrs. J. Edgington and Co., 108, Old Kent Road, S.E., had garden seats, tents, &c.

On this occasion the Forestry Committee organised a British Forestry exhibition, which appeared to have fair success, and of this and the kindred agricultural education exhibition we may have a fuller record in our next issue. The latter was organised by the Education Committee of the society, in co-operation with the Lawes Agricultural Trust and Agricultural and University colleges. This we found last year to be one of the best features of the fixture, and on this occasion it was very well attended. Specimens of fruiting bushes, &c., infested with insects and



Merryweather's "Novelty" Spraying Machine.

fungoid attacks were on show, together with soils and crops, showing the effects of various manures, &c.

Next to the educational section were open-air groups of ornamental deciduous and evergreen shrubs from Messrs. Dicksons, of Chester; Little and Ballantyne, Carlisle; and Mr. L. R. Russell, Richmond. All the subjects were clearly named, and these formed an interesting and instructive feature.

A forestry exhibit, comprising seedling Pines and Conifers, &c., each in trays and narrow boxes by itself, and backed by taller shrubs, came from Hon. Mark Rolle, Stevenstone and Bickton, Devon. The foresters (Mr. Barrie of Stevenstone and Mr. Muirhead of Bickton) are to be congratulated on the neatness and high general excellence of the whole display. So many as 153 different kinds were on view. Another exhibit was that of German forestry implements, and of piles of different woods, to prove their durability as fencing posts.

Royal Meteorological.

The second of the afternoon meetings for the present session was held on Wednesday, the 15th inst., in the rooms of the society, 70, Victoria Street, Westminster, Capt. D. Wilson Barker, president, in the chair. The Rev. C. F. Bax gave an account of some curious "Effects of a Lightning Stroke at Earl's Fee, Bowers Gifford, Essex, April 13, 1904." A thunderstorm occurred during the early morning hours, and about three a.m. there was a blinding flash, lighting up the whole neighbourhood for miles around, followed immediately by a crashing explosion. One person stated that he saw what appeared to be a cylinder, and another person a ball of fire descend and then explode, "casting darts" in all directions.

On careful examination in daylight, it was found that in an Oat field which had recently been dredged, there were three distinct sets of holes ranging from 9in down to about 1in in diameter. The holes, which were perfectly circular, diminished in size as they went downwards, and remained so on to the perfected rounded ends at the bottom. Upon digging sectionally into the soil, which is stiff yellow clay, it was found that the holes were "as clean cut as though bored with an auger." An interesting discussion followed the reading of this paper. A paper by Mr. A. Lawrence Rotch, of the Blue Hill Observatory, U.S.A., describing "An Instrument for Determining the True Direction and Velocity of the Wind at Sea" was, in the absence of the author, read by the secretary.

Newport (Mon.) Gardeners'.

The usual meeting of the above association was held on June 8, when Mr. D. Powell, gardener to Colonel C. T. Wallis, read a very practical paper on the culture of Achimenes. Mr. Powell (who has taken many first prizes at the local shows for these plants) said the Achimenes was a most charming plant for conservatory decoration, being very beautiful when well grown and flowered, and ought to have a place in every gentleman's establishment. They are very attractive for hanging baskets and brackets against the wall of the conservatory, not tying them up, but letting them droop of their own sweet will. They may be grown in pots or in pans for exhibition, which should be quite clean and well drained. The soil would be two parts fibrous loam, one part fibrous peat, and one part well decayed oak-leaf soil, a small quantity of wood ashes, and sufficient sand to make the compost porous.

Fill the pots or pans to about 1½in from the top, pressing the soil firmly, then place the corms over the surface, about 1½in apart, placing nearly 1in of soil on top; then place them in stove or warm greenhouse. Water very sparingly until they commence to grow. When about 6in high tie them up, using neat privet sticks, giving them more light and air. Use the syringe night and morning on bright sunny days, this will tend to keep down thrip and red spider, keeping a moist atmosphere. They must be shaded from bright sun. Weak soot-water given when the flower-buds are showing is very beneficial once or twice a week.

After blooming, remove to a cool and airy greenhouse, and when the foliage begins to decay, gradually withhold water until quite dry, when the corms may be picked out and put into small pots, covered with dry sand, and stored in a dry place in a temperature of about 50deg. The best time for potting them would be the end of February and beginning of March. If attacked by thrip or green fly, fumigate at once with XL All. Achimenes may be propagated by the corms, cuttings, and leaves, which root readily in good, moist heat, also by seed. A good discussion followed, in which the chairman, Messrs. Harris, Woodward, Wiggins, Daniels, Jones, and Mitchell took part. Mr. Powell was accorded a hearty vote of thanks for his interesting paper. Mr. J. Duff presided.—J. PEGLER.

A Petrol-Driven Spraying Pump.

The present figure shows the "Novelty" patent portable petrol-driven pump for spraying, hop washing, watering &c. It is driven by a petrol high speed motor, with gun-metal rotary pump, coupled direct to the motor shaft, the whole machinery mounted on a 30 gallon tank, carried on two light iron wheels, and provided with handles. The petrol supply is carried for 10 to 12 hours working, and the ignition is by battery and coil. The pump can draw from the tank, in which an insecticide can be mixed for spraying; or a suction pipe can be employed to draw from a pond, stream, or other supply. A pressure of 60lb per square inch can be maintained, the delivery being sufficient to keep three or four sprays going at once. The motor can be started instantly, and the apparatus will do the work of several men at less cost, while being lighter in weight and more portable than steam apparatus. It is offered by Messrs. Merryweather and Sons, Ltd., of Greenwich Road, London.

Concentrated Fertilisers.

If, in addition to nitrate of soda, other concentrated nitrogenous fertilisers are used, such as sulphate of ammonia, fish guano, dried blood, rape dust, &c., these should be put on earlier than the nitrate of soda; and in this case the quantity of nitrate would be decreased. It must be remembered, however, that the nitrogen in nitrate of soda is immediately available for plant use, and that the nitrogen in lewt of nitrate of soda goes farther, for the immediate crop, than the same quantity of nitrogen in the form of fish guano or rape dust or dried blood, or even—except in a wet season—of sulphate of ammonia. In fact, the choice between nitrate of soda and sulphate of ammonia, and their proportion to any other nitrogenous fertilisers used, is to be determined in individual cases by circumstances of soil, climate, and cost.



Fruit Forcing.

VINES CLEARED OF THEIR CROPS.—Syringe occasionally to keep the foliage clean, afford water to render the soil moist, mulch the border with short, spent material, and thus prevent the surface cracking, whilst encouraging the roots to work at the upper part of the border. Allow a moderate extension of the laterals, and admit air freely above 60deg. There is no fear of the wood not ripening, and the difficulty is to prevent its doing so prematurely.

MELONS.—Plants with the fruit ripening must have a plentiful supply of air, and water should be withheld from the fruit. If the plants are strong, and there is a disposition to crack, in addition to withholding water, cut the growths about halfway through a few inches below the fruit. A dry atmosphere is essential, and a temperature of 70deg to 75deg artificially, falling about 5deg at night. If the sun be powerful, place a slight shade of some kind directly over the fruit so as to ensure their ripening evenly and gradually. Water only to prevent flagging. A slight shade after a dull period is better than heavy waterings and a close, vitiated atmosphere.

PEACHES AND NECTARINES—EARLY HOUSE.—The fruit will shortly be all gathered, therefore admit all the air possible day and night. If the roof lights of the earliest forced house are moveable, take them off after the trees have had full ventilation for a fortnight, and keep the trees free from insects by forcible syringing. Let the borders be duly watered, afford liquid manure to weakly trees, which helps them to plump the buds, and mulch with short manure. Cut away the wood which has borne fruit to the shoot at the base intended to bear fruit next season, unless such shoot is required for extension. If there be any superfluity of shoots remove them now; they only keep air and light from the principal foliage, and hinder cleansing operations. Keep laterals and any gross shoots closely stopped.

HOUSES WITH FRUIT RIPENING.—The trees must not be syringed, but moderate moisture should be maintained until the fruit is ripe; even when ripe an arid atmosphere should be avoided, as it is highly prejudicial to the principal foliage. Water must be given liberally, but not excessively, at the roots. Admit air abundantly. In gathering Peaches, great care is necessary, as the least pressure makes a mark, and spoils their appearance. A piece of wadding should be held in the hand, and the fruit removed by gentle pressure, then laid gently in a padded basket or tray. A cool, airy fruit-room is the best place for Peaches and Nectarines after they are gathered.

LATE HOUSES.—Train the growths thinly, reserving a shoot at the base of the current year's bearing wood, and stop those on a level with or above the fruit at two or three leaves, and succeeding growths at a joint or two. Side shoots or extensions not required for forming bearing wood, or for furnishing the trees, stop at an inch or two of growth to form spurs. Thin the fruit to a few more than will be required for the crop, retaining the largest and best-placed. There should not be more than one fruit to each square foot of trellis covered by the trees, but a few more may be left to meet casualties in stoning. Syringe twice a day except on dull days. During the prevalence of dull weather an occasional syringing will be all that is required, as it does not answer to keep moisture hanging on the foliage. Water inside borders as necessary, and afford liquid manure to weakly trees. Mulch the borders lightly with short manure, and keep it moistened as it becomes dry.—G. A., St. Albans, Herts.

The Flower Garden.

WALLFLOWERS.—The transplanting of Wallflowers from the seed-beds should take place now at favourable opportunities, so as to obtain a good stock of plants to furnish beds and borders in autumn. The later-sown beds may require a short time longer to strengthen. Select a piece of open ground where the soil is of moderate fertility, and prepare it by deeply digging and working in some decayed manure, or any old material which will enrich the ground. In transplanting, form a trench deep enough only to admit the roots straight down. The trenches may be 6in apart, and the seedlings 6in asunder. Should the ground be very dry, after partially covering over the roots and making firm, give a good soaking before filling in the trench. This will carry them on without water for some time.

SEEDS TO SOW.—To obtain a good stock of Pansies, Violas, Columbines, Canterbury Bells, Primroses, and Polyanthus, seeds may be sown at the present time. Secure good strains from a reliable firm. Prepare a bed on a sheltered piece of ground or in a frame. Sow in drills or broadcast, merely covering the seed with fine soil. Keep moist and shaded until germination ensues, then afford abundant light, and protect according to needs. As the plants increase in size, prick out separately.

BEDS AND BORDERS.—Cut off the withered flower stems from Larkspurs, Pyrethrums, Everlasting and Sweet Peas, Roses, Pansies, and Violas. By so doing, many of these will be enabled to continue flowering longer than they otherwise would. Pinks will be in full bloom, and Carnations must have all the flower stems supported. Thin out annuals further, encouraging growth by stirring the soil about them. All recently planted subjects will be the better for having the soil stirred about them, and kept clear of weeds. Now that the plants in beds and borders are becoming established in their positions, waterings will not be so frequently necessary. Peg down as necessary all plants of a trailing habit.

PROPAGATING PYRETHRUMS, PENTSTEMONS, PHLOXES.—It is essential to propagate young stock of these as soon as side shoots are obtainable during the summer. Prepare a bed of light, sandy soil in a frame or on a moist border. Stocky young shoots of a short jointed character, without any flower buds in the centre, are best. Dibber them in drills about 2in apart. Keep moist and shaded from the strongest sun.

CANTERBURY BELLS.—These being now in flower, large plants should be accorded some support, and as the individual flowers decay, cut them off, and thus prolong the flowering. There will also be found among the flowering plants where these Campanulas have been grown the previous year a number of strong young seedlings. These will prove serviceable for next season, making sturdy plants, which may be moved when necessary.—E. D. S., Gravesend.

The Kitchen Garden.

AUTUMN CAULIFLOWERS AND BROCCOLIS.—These should now be planted out without further delay. The soil should be rich and deeply cultivated for this important crop. The plants should be carefully lifted, with as much soil attached to their roots as possible. Good broad holes should be made to receive these balls, and a thorough soaking of water should be given as the plants are set out. If liquid manure can be used, so much the better.

LETTUCES AND ENDIVE.—As soon as these are large enough to handle, they should be thinned to a distance of 6in or 8in from plant to plant. It is much the safest plan to sow where the plants have to stand at this season, as a spell of warm weather may set in, when transplanted plants do very little good. The plants should never want for water. A few soakings of liquid manure should be given if possible. This will cause a crisp growth.

PARSLEY.—The early sowing of this should now be thinned to 6in to 8in from plant to plant. Well grown Parsley will resist sharp frost far better than plants which have been drawn up weakly in thickly sown drills. Another sowing should at once be made. A warm, dry border should be chosen if possible, as the plants will be all the more likely to winter here. Fill the drills with water an hour before sowing the seed, as Parsley germinates badly in dry weather.

TURNIPS.—Frequent sowings of these should be made. At this time of year they soon become unfit for the table. Sow on a shady border if possible, and treat the drills as for Parsley. Where the Turnip-fly is troublesome, syringe the plants with quassia extract as soon as they appear through the soil.

LATE CARROTS.—Young Carrots are generally appreciated at all times. If a sowing is now made on a warm border they will afford tender roots in the autumn. If a bed can be squared off so that it can be conveniently covered with a frame, so much the better, as sometimes the weather is not suitable for late growth in autumn.

SPINACH.—Another sowing of summer Spinach should now be made. Give the plants ample room to develop, both between the rows and from plant to plant when thinning. Treat the drills as for Parsley.

HOEING.—It is important at this season to keep the hoe going, and every available niche should be frequently hoed.

WATERING.—Such kinds of crops as Peas, Scarlet Runners, Salads, Cauliflower, &c., will require constant attention from the hose in dry weather. This, together with the hoe, will generally keep crops moving. Peas and Beans should be mulched after a thorough soaking of water.—A. T., Cirencester.

THE BEE-KEEPER.

Ants and Bees.

In some parts of the country ants prove a great pest to the bee-keeper, although I fear the harm they do is more imaginary than real. Where these insects visit hives it will be noticed that they pay more attention to those which are inhabited than those which are empty, as far as bees are concerned, but have plenty of stores, and this leads one to the conclusion that they visit inhabited hives as much as anything for the warmth.

When the ants commence to make mounds in the spring, take a kettle of boiling water and pour it into the nest, or if they are very troublesome pour kerosene over the mounds. They can easily be kept out of the hives by placing the legs of the hives in saucers containing water. I have heard it said that a strong colony will always clear the hives of these intruders by carrying them away as they do dead bees, and dropping them some distance from home.

Foundation.

There is no doubt that many of our beginners in the art of bee-keeping do not attach sufficient importance to the need of procuring good foundation. To purchase much of the foundation that is sold so cheaply is a waste of money, and it is penny wise and pound foolish to use starters only. Most of our cleverest men affirm that the bees consume 15lb to 20lb of honey to make 1lb of wax. Then where is the gain? for a pound of foundation can be obtained for 2s. 4d., and 20lb of honey costs at least 10s. Use full sheets, then, of the best foundation if you wish to secure the best results.

Some time ago I was asked by a lady to place some foundation in the frames of a good stock of bees. About that time I was doing the same in one of my own hives. It was most interesting to notice the rates at which the bees drew out the comb and filled it with brood. The foundation in the first instance was a composition and cheap; and used in my hives was the best, and, in some instances, mine was drawn out and occupied with brood before the other was touched. If I needed any convincing before, I required none now. By using foundation in the brood chamber we can regulate, in a degree, the number of drones; this of itself is very desirable.

There is no economy in using thin foundation in the queen's apartments. Eight sheets to the pound I find very satisfactory in every way. Always make them secure in the frames, and the best results are obtained by wiring. In any case let about quarter of an inch of foundation remain above the top of the frame, and then run a hot iron along it to melt the wax, and thus seal it in. When I first commenced bee-keeping I omitted this last piece of advice with the most disastrous results, for I started during a very warm autumn with some driven bees, and one day when I went to feed them, I found the bees and foundation in a mass on the floor board. I have learned more about bee-keeping through failures than by success.

In sections always use the thinnest foundation with a worker base, for if drone base be employed it makes the sections look clumsy and unattractive. For extracted honey in shallow frames use that with the drone base.

Frame Spacing.

Having discussed how necessary it is to place full sheets of foundation in the frames, it may be well to say a few words on spacing them in the brood chamber. What is our object in the body box? All of us are agreed, I believe, that we require as much brood space as possible, coupled with an economy of the heat of the cluster. How then can we discover the correct distancing? An eminent German, I believe, examined bees in a natural state, i.e., in trees and skeps, and he found the centre combs were much nearer together than those on the outside, and that the average distance was about $1\frac{1}{2}$ in. After many experiments it is generally agreed that the best results are attained by spacing them in $1\frac{1}{2}$ in apart from centre to centre. It is simplest to purchase metal ends, which are very cheap, and save infinite trouble.

If combs are wider apart I find more honey is stored in the brood chamber, and, as a consequence, there is less brood and less super honey. Close spacing encourages more brood raising consisting of workers, and retards the raising of drones.—HYBLA.

Doubling.

During the past few years the conviction has been forced upon many bee-keepers that honey in bulk as a commercial commodity is far more valuable than comb honey, and it is consequently easy to understand that in those apiaries where its

production is the main object, any suggestion by which the harvest of it may be augmented will be very acceptable. There is really nothing strange in this preference for extracted honey, when the matter is logically considered. For one thing, there is a great deal less trouble in working colonies for it, and there is also less care required in afterwards dealing with honey in bulk irrespective of the increased weight obtained.

A method of management under which greater harvests can be secured is termed doubling or storifying. Not only is the yield more by this plan than any other, but swarming is at the same time checked with tolerable certainty. There have, however, been so many conflicting reports as to the achievements of the system, that many are seeking authoritative information on the subject.

Oetl's golden rule for the successful production of honey was "Keep your stocks strong," i.e., have the working population largely in excess of that required for the duties of the hive, such as comb building, nursing, &c. In the first place, it must be obvious that the quantity of honey collected by the bees must always be in proportion to the number which can be spared from the labours of the hive to gather it, and it will be observed that those colonies which produce the largest quantity of honey are those which in the early part of the year were very strong.

Again, if a young and prolific queen at the head of a colony is from some cause—say, paucity of bees—unable to deposit the maximum number of eggs until the commencement of the honey season, the inevitable result will be an excess of brood at an inopportune time, and a large number of labourers whose efforts might have been expended in gathering honey will have their attention monopolised by the brood and its wants, and consequently those few bees which are able to gather honey will only bring sufficient in for the daily requirement of the colony.

Now, if the number of adult bees above those required for nursing are not produced before the honey flow, the same disproportion sometimes continues until the best part of the flow is past, and there is consequently little or no surplus stored; but should there be two colonies in a similar condition, or just on the verge of entering the supers, and the season passing away, a larger population can be obtained in time to accumulate a little surplus by doubling them and leaving only one queen. The hatching of the brood above and below after doubling secures a colony of foragers far in excess numerically of that which would have been the case if separated, and consequently better results are secured by the union of the two stocks.

The best plan, however, with such doubtful colonies is to stimulate them early in order to produce as much brood as possible, and immediately both brood chambers are full of comb and bees, and honey is coming in, double them as follows:—Select two of the best stocks, remove the quilts, and after finding one of the queens, place her with the bar of bees and brood upon which she is found on the old stand in a new brood box, fixing the brood chamber with the remaining combs and bees above the other colony still in possession of its queen.

If queen excluder is first placed between the two brood nests the combs in the upper one may (after twenty-one days have elapsed) be removed as soon as sealed and the honey extracted, as all the brood will by that time have hatched, and the queen being confined to the lower chamber there is not the slightest risk of interfering with or injuring her. The stock from which the combs of brood have been taken must be treated as a swarm, empty combs being supplied and feeding commenced, as all the old bees will return to their former position and their own queen. Doubling or storifying, as explained above, secures an immense force of young bees through the double quantity of brood, and at the same time furnishes ample storage space as the brood hatches out, which the bees soon take advantage of. A hive so managed, with a young prolific queen to maintain the increase of population, ought to produce as much as 200lb of honey in a moderate season, but the production of honey in large quantities is only possible with vast surplus populations when honey is abundant.—E. E., Sandbach.

FRUIT AND VEGETABLES.—Vegetables of all kinds have been very plentiful during the week, and prices have given way all round, especially for Potatoes. At Leeds, owing to heavy arrivals from Jersey, new Potatoes fell 6s. per cwt. The Manchester reporter refers to the first arrival in the market of Cheshire outdoor-grown Potatoes, which sold at 8s. per 60lb. English Gooseberries, French Cherries, and Strawberries are very plentiful and cheap. Tasmanian Apples are now arriving "wasty," and have fallen in price. The Leeds reporter states that Cabbage of exceptionally good quality is arriving from Lincolnshire, and a plentiful supply of vegetables is generally reported. The London reporter states that the cloudy weather is affecting the growth of British Strawberries, and supplies are not arriving freely. He refers to the first arrival of Dutch Cucumbers.



TO CORRESPONDENTS

* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

BOOKS (A. B.).—You might consult the list we furnished in the Spring Number, March 10.

SPOTS ON PEACHES (Constant Subscriber).—The fruits are badly infested with mildew (*Oidium leucoconium*). Dust the tree with flowers of sulphur, and gently rub it on the spots on the young fruit with the fingers. This rubbing helps to break up the mycelial threads of the fungus, which grows as an epiphyte on the skin, and pushes suckers into the tissues to abstract nourishment. Repeat the dusting with sulphur, and the mildew will disappear, though the affected fruit may not swell properly afterwards in consequence of the injury already inflicted.

GLOXINIA LEAVES AND BUDS RUSTED (C. R.).—The leaves and buds are badly rusted, at one time attributed to a fungoid parasite, but recent investigations have shown that the browned and contracted rust-like appearance is the effect of infection by a mite that may not inappropriately be called the Gloxinia Mite (*Tarsonymus Gloxini*), though it attacks *Gesneras*; indeed, we first noticed the rust on *Gesnera cinnabarina* about 1870, and it spread from this plant to *Gloxinias*, *Begonias*, and *Achimenes*. Further investigation resulted in its being found on Ivy-leaved *Pelargoniums* and *Cyclamens* in a greenhouse, and still farther research showed that it was present on the rusted leaves of *Geranium* and *Erodium* species outdoors, and also on Box. The only known repressive measures successful against the pest have been frequent sprayings with tobacco water, the spray being from below, so as to wet the leaves on the under side as well as the upper surfaces and stems. This we have found useful; also periodical fumigations with tobacco paper and vaporising with nicotine compound. Possibly treatment with hydrocyanic acid gas would effect the annihilation of the pest, but on this point we have no definite data, only that of the gas being fatal to all animal life, whilst not injurious to vegetation when judiciously applied.

YOUNG PEARS SWOLLEN AND BLACKENED—APPLE FRUIT DESTROYED (Senex, Devon).—The fruit is certainly blackened and destroyed, and this appears to have been caused by the Pear-scab (*Fusicladium pirinum*), though the white mould on and inside them is that of the brown-rot of fruit (*Monilia fructigena*). As for the maggot we only found one in the specimens, and it was a minute caterpillar not distinguishable from that of the codlin moth (*Carpocapsa pomonella*), and not clearly seen by the unaided eye, being so minute and young. It certainly is not cause of the blackened and ruined condition of the young fruit. The Apple tree trusses of young fruit are completely whitened by the Apple-twig mildew (*Sphaerotheca mali*), and the browning of the foliage is simply due to the mildew on the young wood. The old wood shows a very neglected condition, being overgrown by lichen and moss, and some of the spurs are dead. The judicious pruner, the cleanser of the trees from overgrowths, and the applicer of fertilisers to the soil, seem very much absent in this case. They are the worst we have seen in the many thousands of specimens examined during the year 1861-1904. The trees should be sprayed with a caustic alkali wash so as to cleanse them from the lichen and moss. The Apple twigs that show the white mould should be cut off to sound tissue immediately below, as the mycelium of the fungus is perennial on the tissues. For the prevention of the Pear-scab, spray with a solution of potassium sulphide, 1oz sulphide to 6½galls of water, first, just as the flower buds begin to open; second, when the petals of the flowers are falling off, and third, when the fruit is the size of peas or slightly larger. If the season be rainy a farther treatment should be given twelve days after the third. Apply to the ground in autumn 4oz per square yard of a mixture of 9 parts superphosphate, 5 parts nitrate of potash, 7 parts nitrate of soda, and 7 parts sulphate of lime, extending from the stem of the trees to a yard beyond the spread of the branches, and repeat in the spring. There is no need to wash the dressing, as the rain will do that fast enough.

ASPARAGUS GROWERS IN EVESHAM (Mrs. M. P.).—Three large growers of Asparagus are Mr. Jones, High Street, Evesham; Messrs. White Bros., Evesham; and Mr. Rowland, Bengeworth, Evesham.

CHERRY SHOOTS (H. M. Hynes).—The points of the shoots received with letter are infested by black fly (*Aphis cerasi*). They may be destroyed by dipping the shoots in tobacco water, and while there gently rub the affected leaves on the under side with the fingers so as to thoroughly wet the pests. The late Mr. Thos. Rivers gave as the best remedy for the Cherry aphid, the following recipe in the "Miniature Fruit Garden," page 113: Boil 4oz of quassia chips in a gallon of soft water, ten minutes, dissolving in it, as it cools, 4oz of softsoap. It should be stirred and also strained, and the trees syringed with it twice or thrice. The day following the trees should be syringed with clear water. The several advertised insecticides are also effectual, the great point being to reach the aphides on the under side of the leaves, thoroughly wetting the pests with the insecticide.

MALMAISON CARNATION CANKERED (G. E. B.).—The examination revealed a cankerous condition of the root stem. The spots on the leaves are probably a consequence of the root stem affection, though there may be a little of spot fungus, *Septoria dianthi*. The cause, however, of the collapse of the plant is decay in the root stem, and this has probably been induced by potting in too rich soil, and keeping the roots too moist. There is hardly a remedy, as the stems are destroyed, and the top only collapses in consequence. Perhaps a little basic cinder phosphate mixed with the compost used for potting, would correct the tendency to decay in the stem, adding 1lb of the basic cinder phosphate to 28lb of soil, and mixing. Spraying with potassium sulphide solution, 1oz sulphide to 3galls of water, would arrest the fungus on the foliage, the plants should also be given plenty of light and air, the foliage being kept as free from moisture as possible.

LEAVES OF BEGONIAS AND GLOXINIAS CRUMPLING (B. H.).—I send you by this mail a young seedling Gloxinia, showing how they are curling up in the centre. Quite a number have done so very suddenly, when seeming to be growing vigorously; also a leaf and bunch of buds from a tuberous Begonia, in a 4in pot, which was the picture of health until the new leaves began coming all crumpled up, and the buds seem to blight and turn a rusty colour. Both are in very light, loose soil, with considerable rotted leaves in it; have a night temperature of about 60deg, carefully ventilated in the day, and kept moderately watered. The change from an apparently perfect state to this crumpled condition in so short a time puzzles me.—[Evidently the trouble with both the Gloxinia and the Begonia comes from too much sunshine, and allowing too much water on the foliage. If the glass of the house be shaded, and care taken to wet the leaves as little as possible, the plants, being young, should soon recuperate.]

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (N., Lincs.).—1, *Sisyrinchium grandiflorum*; 2, *Iris setosa*; 3, *Iris Douglasiana*; 4, *Iris flavescens*; 5, *Aquilegia formosa truncata*. (J. B., Herts.).—1, *Allium narcissiflorum*; 2, molly; 3, *Isatis glauca*; 4, *Acacia hispida*; 5, *Cæsalpinia japonica*. (F.).—*Iris pseudo-Acorus*, the Water Flag. (P., Thame).—1, *Masdevallia Harryana*; 2, *Iris hispanica*; 3, *Watsonia O'Brieni*; 4, *Erigeron mucronatus*; 5, *Calceolaria plantaginea*; 6, *Dianthus callizonus*. (F. F.).—1, *Dianthus montanus*; 2, *D. petraeus*; 3, *Brevoortia Ida-Maia*.

Meteorological Observations at Wisley, Surrey.

Taken in the Royal Horticultural Society's Gardens—height above sea level, 150 feet.

Date.	Temperature of the Air.				Lowest temperature on Grass.	Temperature of the Soil. At 9 A.M.			Rain.	Wind.		Sunshine.
	At 9 A.M.		Day.	Night		At 1-ft. deep	At 2-ft. deep	At 4-ft. deep		Direction.	Total velocity for the 24 hours ending 9 a.m.	
1904.												
June.	Dry Bulb.	Wet Bulb.	Highest	Lowest								
	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	Ins.		Miles.	h. m.
Sun. 12	55	52	67	50	49	57	56	55	—	N.E.	84	2 42
Mon. 13	60	55	68	50	45	57	57	55	0.01	S.W.	124	6 24
Tues. 14	62	58	65	52	49	59	58	55	0.20	S.	258	1 42
Wed. 15	59	54	61	54	52	59	53	55	0.03	S.W.	311	0 42
Thurs. 16	61	55	66	53	49	59	53	55	—	S.	259	12 26
Fri. 17	61	54	67	54	50	60	58	55	—	W.	174	6 48
Sat. 18	59	53	67	48	43	60	59	56	—	W.	180	11 55
MEANS	50	54	63	52	48	59	58	55	Total 0.24		199	6 7



Haymaking.

The value of good hay or clover has fallen to such a low point that the farmer of hay, if he were in the same happy position as the producers of other articles of merchandise, could say, "I will not continue to produce hay at a loss"; but he is not in that happy position, for he must either go on haymaking, buy very dear cattle (which will pay no rent for grazing, and certainly no profit for him), or he can give up his land. As, however, he could not get out in less than eighteen months, he must make the best of things as they are, and we think that in view of the extreme competition for store cattle which we see on every hand, the best of things on a large acreage of grass is haymaking. Certainly the price of hay is miserably low, and the stocks of old hay are large, but nothing connected with agriculture is more elastic than the price of hay, and nothing costs less to keep than a stack of it well got. If the hay be really good, it may be kept for years, until the demand should exceed supply, when a large profit may be obtained. Such prices as £5, £6, and even £7 per ton are frequently paid for good old hay, and will be again.

A very important matter is the mowing and harvesting. Perhaps we may not err very seriously when we advise our friends to employ the best machine, which can easily be procured, to cut the hay; but, in the event of no good machine being at hand, we think that men should be employed to mow. In some parts of England the mowing does not justify very high wages, but the way in which the workmen carry out their contracts is excellent evidence that they find few monetary difficulties made by their employers. We all know that an article of general consumption which is very cheap is an excellent investment, and we can see no better form of investment just now than in the stacking and proper thatching of well got hay.

Clover is always easy to sell: it always has a ready price, which fluctuates much less widely than that of hay; but it is sometimes difficult to save in fine condition. A valuable part of the clover plant is the leaf, but a dry crop of clover is seldom seen with the leaf intact. Too often the leaf has been destroyed by rough usage, and either left in the field or scattered in small particles at the stack side. There is another portion of the hay crop which may be as easily allowed to run to waste, i.e., the seed of the rye-grass. If rye-grass be not cut before the seed is quite ripe, much of the seed may probably be lost, and the value of the hay correspondingly reduced. The fact also of the grass having attained to such a state of maturity as to have shed its seed is evidence that the leaf and stem have commenced the period of their withering and eventual decay, and the crop is losing weight and quality with every day it is allowed to stand uncut. The same argument holds good with regard to the grasses of which hay chiefly consists. The hay should be cut before the grasses have shed their seeds. We should much prefer to err on the side of earliness in cutting, for after a certain time, gain in weight of crop is discounted by a falling off in quality.

Having got our clover or hay cut, then comes the anxious time of making it, when our interest in the condition of the barometer is often painfully acute. Some people begin shaking out the hay as soon as it is down, but unless the weather is very hot we should wait a couple of days. Then the swathes should be turned by hand forks. If the conditions are favourable, the day following should see the crop dry and safely in cock, if not in stack.

Crops vary very much, and very heavy ones require a much longer time to make than light ones. When the lightness is attributable to a recent period of drought, very little nature may be left in the hay, and little will be gained by going through the usual procedure. Such hay is best put quickly into small cocks, and stacked after being in cock a couple of days.

Haymaking machines are much used by some people, and especially in grass districts where labour is difficult to obtain; but we think their use tends towards knocking the hay about too much, and they are quite useless for clover. Hands and forks must be used amongst clover if the leaf is not to be lost. The swathe should be deftly turned over by a twist of the fork, leaving it overturned, but otherwise intact. American rakes or

tipplers are generally used to get clover up, but they are liable to knock off the leaves, and if the hands and time can be spared, we prefer to cock clover entirely with the fork.

Regarding the best time to cart into stack. If the hay or clover has never been rained on since it was cut, all that is necessary is to make sure that there is not sufficient sap left in the stems to cause undue heat in the stack. If rain has fallen, and the hay has been very wet after being nearly withered, it must be got dry again, or it will inevitably mould in the stack, and mouldy hay is almost useless. A little heat in the stack is rather beneficial than otherwise when the material is coarse, and is wanted for general farm use.

Hay which has become very much weathered—in fact, almost hopelessly spoilt, may be much improved by sowing a quantity of cattle condiment over the surface of the stack after each load has been put on. A moderate quantity of common salt put on with it is also beneficial.

Work on the Home Farm.

We have had a splendid week for work, and now, after we had begun to long for a shower, we have had a beautifully soft and gentle rain. The effect on vegetation is remarkable, and the only fear is that the early sown barleys may be too gross. The late barley, however, will benefit greatly, and perhaps may more than realise our earlier expectations. The dry weather was also somewhat serious for the young clovers sown late, and only just above ground. For them the rain is just right, and a good plant should now be safe. Up-to-Date potatoes are looking well everywhere, but the appearance of the newer kinds is anything but satisfactory. They have come up very unevenly, and many tubers have not grown at all. Holders of last season's crop are now asking for 40s. per ton, but there are no buyers. New potatoes were ready to dig for Sunday, June 12th, a week earlier than usual. Farm work is rather monotonous now, as it is the same round of sowing and hoeing week after week, with one interval for the clover and another for the haymaking.

Swedes have come up well, but have not grown so quickly as they ought. Perhaps the rain will help them on, otherwise they will come late to the hoe. We have some common turnips up and ready for skerrying, as are the mangolds for the second time, preparatory to the striking out process. They are a full plant, and very superior to those of last year.

Sheep are healthy and thriving, and keep their price in the markets well. We never saw lambs all round look better, and there will be some grand lots for the autumn fairs. It is but natural that they should have done well, for surely there never were better seed pastures.

Seeing that we had room for a few young cattle, we went to market last week and bought a few yearlings, but we found them both scarce and dear. We were fortunate in getting some of a nice class; for if they are dear to begin with they may grow themselves cheap, whereas the common sort never can.

Many potatoes are being fed to pigs, but there is not much goodness left in them, and good mangolds would do them more good. We have many breeding sows about here, and litters are very numerous. There will be no rise in the pig market just yet.

From British Soil to Soils of Distant Climes.

Some few months ago Messrs. John K. King and Sons, seedsmen by royal warrant to H.M. the King, of Coggeshall, Essex, and Reading, Berks, supplied a quantity of their seeds for the Agricultural Department at Uganda, East Africa, and it is satisfactory to note that they have maintained the high reputation which the firm has for their Essex grown seed, and have produced most satisfactory results in that distant part of the world. During the past few days Messrs. John K. King and Sons have received an official report of the seeds sent out, of which the following are extracts:—Peas did very well, especially John K. King and Sons' Earliest of All, Improved Telegraph, and American Wonder. Dwarf Beans grew very well, and were a great success. Lettuces were a great success, especially Early Harbinger. Mangold Wurtzel and Swede Turnips were grown both at Entebbe and Masaka, and in both places grew remarkably well. Turnips were an unqualified success, especially the Imperial Green Globe; they were ready for pulling within six weeks after sowing, and were of excellent flavour. Carrots grew well, and preference is given to the Early Short Horn variety. Cabbage, Broccoli, Brussels Sprouts, Kohl Rabi grew and produced results with as much success as in England. Tomatoes gave most excellent results, especially Lord Roberts. Radishes grew very quickly, and were fit to pull three weeks after sowing. Endive and Parsley flourished well, and gave most excellent results. Potatoes grew well, and produced most satisfactory results, especially the following varieties: John K. King and Sons' Selected Early Rose, Early Snowdrop, and Improved Up-to-Date.

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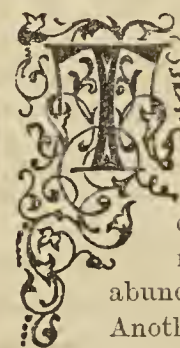
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Journal of Horticulture.

THURSDAY, JUNE 30, 1904.

Why Fruit Crops Fail.



THE conflicting reports published in the horticultural and the daily Press, in regard to this season's fruit crop, must leave the minds of the general public in a very confused condition as to the ultimate result. One writer declares that an abundant crop of all kinds is assured. Another writes in a vein that would lead one to believe that, with the exception of Gooseberries and Strawberries, another year of failure must be recorded. The huge quantities of Gooseberries which have been placed on the markets show clearly enough that they, at least, are no failure, and the commencement of the outdoor Strawberry season is proving that they, too, will be unusually abundant; but unless rain comes within the next few days, fruits for the later pickings will be small.

In regard to other fruits, there can be no doubt that prospects vary greatly in different districts, and even in different plantations in the same district; but we are convinced that at the end of the season the general verdict will be that, on the whole, fruit has been plentiful and good. A great deal of the fruit which has dropped would, had it remained on the trees, only have served to glut the markets with useless rubbish. Even now, Apples in many districts are carrying much more fruit than they can bring to full maturity, and thinning should be resorted to.

In some cases, however, we have met with plantations of Plums and Pears which are carrying too light a crop to be profitable, while near here we have seen trees of the same varieties with wonderful crops. The question therefore occurs, Why this disparity, when all must have been in flower at the same time, and no frosts occurred at blossoming time? Many have put down the cause of failure as being the cold weather which prevailed just after the fruit was set, and that the check thus given to the flow of sap resulted in the fruit dropping wholesale. We have no doubt that the cold weather was answerable for some of the damage, but only an

READERS are requested to send notices of Gardening Appointments or Notes of Horticultural Interest, Intimations of Meetings, Queries, and all Articles for Publication, officially to "THE EDITOR," at 12, Mitre Court Chambers, Fleet Street, London, E.C., and to no other person and to no other address.

unimportant part; the real cause of failure was lack of moisture at the roots during the critical period of flowering and the first swelling of the young fruit; for, although we had a few welcome showers about Whitsuntide, the weather has since been so dry that the impetus given to vegetation by the rain was not long maintained. When there is a deficiency of moisture at the roots, trees and plants quickly become enervated, and fall an easy prey to insect pests and diseases.

Now for a few facts in support of the above ideas. The writer was recently looking over a market garden in which Plum trees were planted rather thickly, in lines 50ft apart, vegetables being grown between. The owner was bewailing the fact that the Plum crop was very light, and he made the remark that he could not understand it, as ideal weather prevailed when the trees were in flower. We remarked that we were convinced the partial failure was because of the dryness of the soil. Spade and fork were then set going beneath some of the trees, and the soil was found to be dust dry. It was a sandy loam resting on gravel, and most cultivators know that, no matter how much rain may have fallen during the previous year, it leaves but little reserve of moisture within reach of the roots—it simply runs through the subsoil as it would through a sieve, and there is no drawing it up again through a bed of gravel. An unlimited supply of pond water was in this case at hand a couple of hundred yards away, and one may believe that a couple of men, by the aid of a horse and water cart could, in a few days, have so effectually watered the trees at the critical time, as to have ensured a bountiful crop.

In the same district on identical land, we found trees in private gardens of both Plums and Damsons carrying wonderful crops, and on enquiry found they had been thoroughly watered when in flower. This question of—as far as possible—providing means of watering fruit trees at critical times is becoming an urgent one in connection with fruit growing, for it often means that unless it is done the work of the whole year is thrown away.

We can do but little to prevent injury by such disastrous frosts as occurred last year; but when trees are loaded with blossom, and frosts are absent, it should, and we believe is, within the power of many cultivators to ensure a full crop, especially where there is only an acre or two to manage. To such men the loss of a crop often means the loss of a livelihood, and a little extra labour expended on watering would be repaid fifty times over.—G. C.

Among the Hardy Flowers.

Whether the weather be summerlike or no, the flowers of the season come on, recking little, so far as one can see, of the character of the seasons. They may be earlier or later, but still they come, and we welcome them as gladly as of old. Many lovely things have passed away, and the garb of the present season seems even more sumptuous than that of a month ago. The gold of the Cytisus and Genista has become dimmed; the Whitethorn has become shabby, the Tulip has lost its glory, and many more have passed away. Yet in their stead have come many goodly blossoms; flowers we delight in from morn till eve, and others whose beauty is more ephemeral. The reign of the Rose has begun, and that, in itself, speaks volumes for the attractions of the time. Single Roses, double Roses, dwarf Roses, climbing Roses, Roses white, and Roses gold, Roses scarlet, and crimson, and blush, and all intermediate stages. No wonder the rosarian is engrossed with the beauty of his favourites at this time. The more eclectic plantsman has a love for the Rose even greater than some would suppose, but he has many favourites all claiming some attention at his hands.

POPPIES.

The flower of Lethe is no longer so despised as was at one time the case. Many now appreciate the colour and the form of the glossy crinkled flowers of the perennial Poppies, and it is not an unsafe prophecy to predict a time when the perennial Papavers shall be as varied and as beautiful as, say, the exquisite Shirley Poppies. The Oriental Poppies have undergone great improvements, and the hybrids of various colours are, many of them, very beautiful. Among them all, one cannot but like that fine plant, Papaver Mrs. Moon, with its crowd of "fluttery" flowers of such bright colouring. It is less stiff than many, and its lesser stature than that of some of the greater forms of *P. orientale* makes it a most useful flower in the foreground or middle of the border. Then, apart from the many forms of *P. orientale* of many colours and shades, there is the fragile, but beautiful, flower of *P. pilosum*; with the pretty blooms of *P. rupifragum*; while those who would include the *Meconopsis* with the Papaver, would have more variety still in the yellow and blues of these flowers.

CAMPANULAS.

With the writer, at least, only some of the Bellflowers are in bloom, and the glory of the Campaniles and carpets of beautiful bells is not yet at its zenith. Beautiful, however, is the pretty versicolor or Tenorei, with its heads of light blue flowers, from 4in to 12in high. It is one of the prettiest and least common of those in bloom, and has only one fault—that, it may be, rather a bad one with some flowers—it spreads or runs about at the roots a little too freely; partaking in this, but naught else, of the rapunculus type, a terror in the garden and a continual source of despair to the gardener. Fortunately, however, it is not so pronounced in its aggressive propensities. Others come on quickly, and soon we shall have many spires and cushions or trailing miniature curtains of the Campanula race.

LIBERTIAS.

The Iris-like—so far as regards foliage—Libertias are generally popular whenever seen at this season, and some few have done very well this season; although it must be said that their hardiness in all parts of these islands is under grave suspicion. There are several in cultivation now, and I feel sure that only a little care is required to grow the most of these in most of our gardens. They must, however, have a dry soil, rather elevated above the general level by preference, and a sunny position. Even in the Aberdeen district such of the genus *Libertia grandiflora* can be grown well; while *L. ixioides* and *L. formosa* seem to do almost as well. Here at present there is a fine plant of *L. grandiflora*, covering a little knoll, and bearing many spikes of its white flowers. It resents removal, and was two or three years before coming into bloom here after first planting. One may safely recommend a greater trial of these Libertias.

LUPINS.

The Lupinus is a really summer flower, and many of us have pleasant recollections, going back for many years, of the noble spikes in gardens of long ago. It seems as if the Lupin had taken a new lease of life, for some of the newer forms of *L. polyphyllus* are both varied and beautiful in their colouring; while the tree Lupins are unsurpassable in their season. I have here a noble yellow tree Lupin more than 6ft in diameter, and as many in height. It is coveted by many who see it lighted up by the sun, while at other times its golden spikes are very beautiful. More lasting, however, are the herbaceous Lupins, and before this the writer has called attention in the pages of the *Journal* to their value. It is pleasant to see fresh interest in them. Here there is a plant called *L. grandifolius*. Probably it is, as the botanists consider, only a form of *L. polyphyllus*. It has long spikes of purple flowers and handsome leaves, even more ornamental on account of their size than those of the ordinary *L. polyphyllus*.

OTHER FLOWERS.

One might tell of the Pyrethrums, with their lovely flowers of many shades; the Cisti, with fugacious, but lovely blossoms; the Helianthemums, with equally short-lived blooms of the same character; the early Lilies with their grace and beauty; the Polemoniums; the Saxifragas, a few of which are yet in bloom; or the Achilleas, the Geraniums, Erodiums, and the Mimuluses. One might speak of the earliest of the perennial Peas; the deliciously fragrant Pinks; the Veronicas, with their charming spikes, tall above the plant, or trailing over the rockwork; the Columbines, not yet over; the Astrantias, the Tiarellas, the Mitellas, and the Heucheras, with their graceful spikes of little flowers. That constant succession and change, which is one of the charms of a garden of hardy flowers, is never more observable than in summer. One beauty departs; another comes upon the scene. One joy vanishes for the year; another enters to drive away the regret, and to cause a fresh delight. It is a daily round of pleasure to wander among these hardy flowers, to admire the newly-opened flower, and to see the first bit of colour appear through the opening bud.—S. ARNOTT.

Derivation of Common Names of Fruits.

Probably many people have wondered lately, as they were eating Gooseberries, what connection there was between the berry and a goose. There is none. "Goose" is a corruption of "gorse," a prickly shrub. The Cranberry, on the other hand, has something to do with a bird, for it is named from a fanciful resemblance of its slender stalk to the legs of a crane. Strawberries do not grow on straws, but strawed, or strewn, along the surface of the ground. Mulberry in Anglo-Saxon was "murberie," and the "mur" is allied to the Latin "morum" and the Greek "moron," a Mulberry tree. The Bilberry, which grows in such profusion on some of our moors, is really the blueberry (Blaeberry). And it does not need a Macaulay's schoolboy to tell us whence a Blackberry gets its name.—("Daily Chronicle.")



Odontoglossum crispum* var. *Harold

This exceptionally fine variety was staged at the meeting of the Royal Horticultural Society held on May 17 in the Drill Hall, James Street, Buckingham Gate, by Mr. Norman C. Cookson (gardener, Mr. H. J. Chapman), Oakwood, Wylam-on-Tyne, when it received a first-class certificate. The raceme bore seven good flowers of fine form and large size (as shown in the drawing). They are white, each petal with one red spot in the middle; the dorsal sepal and the two lower ones are spotted numerously.

***Cælogyne pandurata* at Birmingham Botanical Garden.**

Cælogyne pandurata has just come into flower for the first time at the Botanical Gardens, Edgbaston, and should be seen by all who are interested. *Cælogyne pandurata* was first found in 1852 by Sir Hugh (then Mr.) Low, growing on tree trunks in swampy districts of that portion of Borneo which, under the name of Sarawak, will be associated for all time with the rule of Rajah Brooke. The flowers, about 4in in diameter, are of the liveliest pea-green colour, while the long green lip has crests and ridges of a deep velvety black, curiously curved into the semblance of a violin—whence the specific name *pandurata*, or fiddle-like. As one of somewhat flamboyant imagination once described it, the whole flower is like nothing so much as a green frog with a long black tongue. There are two spikes of flowers, one bearing five, the other four blooms, which, in addition to their striking form and colour, have a beautiful fragrance. The plant is a rare one in cultivation, probably owing to the fact that, though of exceptional merit when in bloom, there is great difficulty in persuading it to flower. The plant at the gardens, which is now flowering for the first time, has been in possession of the society for at least twelve years.

The Week's Cultural Notes.

After midsummer the number of orchids in flower gradually declines, and although as yet there is a fine show in representative collections, growers will be turning anxiously to the autumn flowering sorts. *Miltonias* of the *spectabilis* group are very useful in this respect; they are now throwing up their flower spikes, and owing to the small amount of compost used for them, they will require very frequent attention to watering if the best results are looked for. A constantly saturated state is not to be aimed at at any time, but the roots must be dry now for a very short time only.

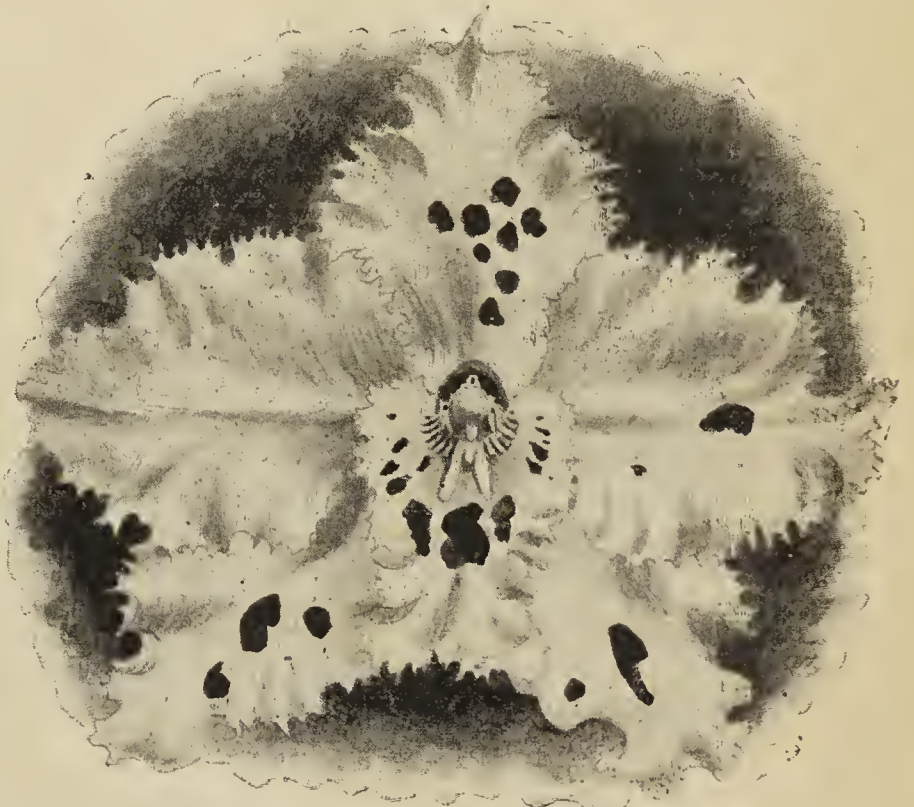
These plants like more heat at this time of year than is usually allowed, but it must be tempered with plenty of atmospheric moisture, and a clear light without the sun actually reaching them direct is to their taste. The popular *M. vexillaria* is going out of flower, but the growths may not be quite complete in all cases, and the roots will still need ample sustenance. The shrinking in size often noted in the pseudo-bulbs of this species will not be so marked if the moisture is kept going in proper ratio with the activity of the roots. The later flowering varieties are coming into line, and a fine display over a long season may be had by growing stock of each section.

The scendent flowering *Oncidium*s of the *macranthum* section are, many of them, past, and a slight rest will be necessary. But it must not be lost sight of that the production and maintenance of these long spikes of flower constitute a great strain upon the plants, and to dry them much at the roots weakens them. More light than they have had, and a moderate amount of moisture, prepares the plants for a rest later, without which they seldom flower freely the ensuing season. *O. superbiens* is still in flower, and also the rarer and more nearly related *O. loxense*, so these must still be kept on the moist side.

Dendrochilum filiforme is coming into flower, and the pseudo-bulbs are developing at the same time, so an ample water supply is needed. *D. glumaceum* and others of the earliest flowering section are past, and the pseudo-bulbs nearly finished. Keep them going until finished, then remove the plants to a cool light house, and only water them sufficiently to keep the pseudo-bulbs from shrivelling. Repot any plants of *Odontoglossum citrosimum* needing this attention, and allow those not requiring repotting an abundant water supply. The best compost for this species is peat and sphagnum; it should be grown in suspended receptacles, and given an intermediate temperature.—H. R. R.

The Strawberry Boom.

The Strawberry season came in with a rush on the morning of June 21, and everything at Covent Garden gave way before the mighty mass of luscious fruit. The previous evening (says the "Daily Express") good Strawberries were selling at 8d. and 10d. a pound, but yesterday (June 21) without a note of warning, the Metropolis was invaded by hundreds of costers' barrows piled high with large, shining Strawberries, the best the season can hope to produce, and they were selling at 6d., 4d., and even 3d. a pound. Covent Garden, in the early hours of the morning, presented a sight that is probably unequalled in Europe. The market was given up to one particular traffic, for when His Majesty the Strawberry arrives in force fruit salesmen do not expect much business in other directions. By noon 25,000 baskets, each containing about 4½lb, had been received at the market, which means that before evening nearly 120,000lb had been distributed over London. This enormous supply was expected to be exceeded. The explanation of the rush is that the Hampshire supplies were about a fortnight late; the crops from Kent and Middlesex, on the contrary, are rather



***Odontoglossum crispum* Harold.**

earlier than usual. The result is that three of the most productive districts sent their supplies together, a state of things from which the public will reap most of the benefit. In addition there are small supplies arriving from other districts. The strain of the Strawberry now selling is the Royal Sovereign, which is undoubtedly one of the most popular varieties in cultivation. French Strawberries are now out of season. Returns from fifty English parishes show that in twenty-four cases the Strawberry crop is from 10 to 25 per cent. above the average; in fifteen cases the average is well maintained, and in no instance is there any failure of importance. Many districts report:—"The largest crop ever known." Salesmen at Covent Garden state that for the next six weeks there will be little demand for any other fruit. The Cherry crop has been somewhat disappointing. In England it has been the worst crop of the year. In several places the yield is put at 25 per cent. below the average. An excellent promise was spoiled by night frosts while the fruit was stoning. France has, however, kept the market well supplied with a splendid strain known as the Royal Hortense. Gooseberries promise exceptionally well. The yield of Raspberries is expected to be from half to three-quarters of the average. There will probably be a plentiful supply of Red Currants, but Black Currants will certainly be bad. Fruit blossom honey has now begun to make its appearance in the market. Experts regard this as the finest honey of the year, for it is free from the sweet insipidity of the sycamore honey and the strong flavour of the heather variety. The experts say that the big houses mix their various supplies, but the small bee-keeper is careful to keep each season's honey separate, as its excellence depends on the flowers on which the bee feeds.



Sawdust.

On page 544 of the *Journal* in your report of the last meeting of the R.H.S. Scientific Committee, it was suggested that sawdust when burnt and mixed with sifted earth had been proved to be a valuable top-dressing manure. In my home here, owing to lack of overhead cisterns we are forced to use earth closets both inside and out. As I found it hard to keep up a sufficient supply of dry earth I, two years back, adopted the system of sawdust closets. The pans are emptied every morning into a large pit about 3ft deep, which, when full, is "fired." Luckily, I have plenty of dead and dry wood, for the material to be burned is naturally rather wet. The fire has to be seen to morning and evening, and takes about three weeks to burn through I have found this burnt sawdust and night soil a most valuable top-dressing.—MID-BUCKS.

P.S.—I may add that I live just opposite a large sawmill, and so am in luck's way as regards getting my material.

The Drying of Fruits.

As supplementary to your notes in the *Journal* of June 23, relative to a recent article in the "Estate Magazine" descriptive of the methods of drying fruits in Asia Minor, I will, with your permission, explain briefly the *modus operandi* under similar circumstances in California, where I have been engaged in the business for the last 28 years. I would suggest first, however, that more attention given to the bottling or otherwise preserving of a surplus fruit crop would, in the British Isles, be more likely to be remunerative and less risky, than to dry or "evaporate" the same, either by sun heat or artificially, the objection to the former plan being absence of sun, and to the latter the too expensive item of fuel for heating and the labour incident thereto.

In the raisin districts of California (and the output of raisins averages annually about 100,000 tons) the main crop, consisting of Muscat of Alexandria, Muscatelle, Gordo Blanco, Sultana and Thompson Seedless, is picked and laid upon small wooden trays which are placed on the ground in the rows between the Vines. The Vines are generally trained very low so that the raisins are not unduly shaded. When partly cured on one side, an empty tray is placed on a full one, and two men, by a swift turn, exchange the raisins so that the under side is on top. When nearly dry, the raisins are put into "sweat boxes," holding about 150lb of raisins, and so hauled to the packing houses, where they are properly graded and packed. It will be noticed that the Grapes are not dipped, as they are in Asia Minor, according to the writer referred to, and that they are dried on wooden trays instead of being spread on the ground. The second crop of Muscats generally goes to the vineries for converting into sweet wines and brandies, unless the price offered be too low, in which case they are dipped for a few seconds in a weak solution of boiling lye. The only object of this is to "check" the skins, or, in other words, to "cut" the natural oil in the skin so that the fruit will dry quickly. By the time the second crop is ripe the autumn is far advanced, the time being late October, and rains may soon be expected, hence the necessity for hastening the curing process. These raisins are known in the market as "Valencias." Years ago some of our growers tried the experiment of using various "dips," which practice has been given up, with two exceptions, for the reason that the keeping qualities of the fruit, as well as its flavour, were, in the end, injured thereby. The Thompson Seedless Grape, an improvement on the old Sultana, is sometimes "dipped," the object in this case being to "bleach" the fruit, the market demanding a certain quantity of a light amber coloured seedless raisin.

The suggestion is also made that Plums, Green Gages, and Damsons seem specially fitted for drying. It is to be presumed that the great Plum for drying, the "French Plums" of the British market, does not succeed in the British Isles. This is the Prune d'Agen, Lot d'Ente, Imperiale, Robe de Sergeant, &c., all being but types or sub-varieties of the Prune d'Agen, grown about Agen and through the valley of the Lot in France. It might be stated, incidentally, that we have, in California, produced seedlings and crosses from this French variety which are considerably earlier in ripening, as well as being equal in quality and of larger size, the trees being exceptionally hardy and great bearers. These should succeed in England, in any of the Plum districts. Plums, of whatever kind, if dried whole,

must be dipped in a boiling lye solution, the proportion of lye, however, being very small, say 1lb to 25galls of water. This refers to 98 per cent. lye or caustic soda.

The object, as with the Grapes, is to hasten the process of curing by "cutting" the natural oils in the skin of the fruit. Otherwise, the Plums would be so slow in drying that many would sour at the stone, and many others would form "frog-bellies" or "bloaters," names which are significant enough to the practical man. Plums which are cut or halved before drying must not, of course, be dipped, but light coloured plums are subjected to the fumes of sulphur immediately after being cut, in order that their light colour may be preserved, and that the fruit will keep better afterwards. Light coloured Plums which are dried whole, and thus made into "Prunes," such as Coe's Golden Drop, St. Catherine, &c., are also sulphured after having been dipped.

Plums suitable for drying must be naturally sugary, and the flesh must part freely at the stone; therefore, it would not seem that Damsons would be suitable, and, with us, a drier-meated freestone would be considered better for the purpose even than Green Gage, however good its quality. The drying of Gooseberries, Currants, Cherries, &c., has never been found profitable, the expense in handling and the loss by evaporation being so great. There are in the United States many appliances: steam heat and dry air, and of capacity suited to the cottager with his few bushels of surplus crop to any "organised" body of fruit growers with hundreds or thousands of tons of fruit to be cared for. Should the subject be of sufficient interest in view of the coming crop of fruit, I should be glad to describe more in detail any of the processes in vogue in California necessary to the handling and caring for of a large crop of fruit.—LEONARD COATES, 14, Hart Street, Henley-on-Thames.

Peaches on Walls.

In his interesting leader in the issue of June 23, "K." touches upon this subject. There is not the slightest doubt in my mind (and here my opinion is in complete accord with that enunciated by "K.") that the chief reason of the failure of these on outside walls during recent years has been owing to neglect and lack of attention. One is frequently told that the seasons in latter years have changed for the worse. Unfortunately so have numbers of wall trees, and inspection of a number of gardens reveals that the Peach has suffered more than any. More unfortunate still is it to know that this state of affairs is not always the fault of the gardener. The cheapening of glass structures may be responsible in some measure for the lack of interest displayed in this phase of gardening; but we must look further than this to discover why so many trees are annually to be found in such a deplorable condition. Badly tended as to disbudding and training, all too frequently infested with both aphides and red spider; in dry seasons receiving little or no attention in respect of watering. It is, I fear, the exception rather than the rule to find healthy trees carrying respectable crops of fruit; yet there is no reason whatever why in the South and more favoured parts of the Midlands this should be the case. Success is readily attainable if the needful labour and knowledge is brought to bear in tending the trees.—J.

British Gardeners' Association.

Above the name of Richard Morningside, a very choice contribution to the above subject appeared on page 540 of last week's *Journal*. So choice, indeed, was the flow of language that I feel constrained to set down side by side a few of the figments of speech culled from the letter in question. The following expressive adjectives adorned a criticism of about thirty lines: "Aspersive letter"; "calumnious statement"; "vitriolic language"; "splenetic raillery"; truly the cause must be a weak one when so much vituperation is required from its champion: and the weakness seems still more pronounced when one considers that the choice language referred to was used with the apparent object of smoothing over difficulties and creating a child-like trust in the wirepullers of the newly formed Gardeners' Association. And now let us see what all this invective was directed against. Why, nothing more or less than the thoroughly British proceeding of exhorting the great body of gardeners to "stand up for the open door," and for "equal justice for all," and not to support a society which is so constituted, that it may be converted into a gigantic trust for the benefit of the friends of the "inner circle."

How any right-minded individual could so misconstrue the latter statement as to term it a calumnious one, is to me inconceivable. Let us take for granted that the present governing body is absolutely unimpeachable, but have we any guarantee that their measures will be above reproach too? The strength and prosperity of a society—or a nation—can only be maintained when the statutes on which its constitution is founded are so framed as to prevent, as far as possible, abuse of privilege

by those in power. I therefore state emphatically that if a society which claims to represent the gardeners of Britain, "slams" the door in the face of thousands who are real gardeners at heart, as well as thoroughly capable men, because they have not served in gardens which the august society considers "of repute," then I say the society is doing those excluded a gross injustice, and is becoming a "trust" for the benefit of the few," this being proved out of their own mouths, and not brought as a charge by me. My object in penning my former notes was certainly not to nullify the labours of the leaders of the organisation, in the laudable object of improving the lot of gardeners, but rather to assist them, by pointing out restrictions which must be removed before the society could really claim to represent the British gardener, and unless the objectionable clause referring to "gardens of repute," is with-

One word in regard to the example of our friends across the sea, from whom we may certainly learn a lesson as to the advantage of giving everybody an opportunity of rising by their own exertions. A relative of mine has recently returned to England after a 13 years' sojourn in the United States of America, and he is very emphatic in declaring that the great reason why that country has made such enormous strides in manufactures and commerce is that employées in the principal firms are encouraged to do their level best. A certain sum is deposited in each firm's bank, and every employée, from the manager down to the office boy, is fully aware that if, by any invention or suggestion, they can increase the profits of the firm, a sum varying from one to five thousand pounds will be paid them at once, and such sums are often paid to employées. Do we not also know that many of the giants of commerce in



Gloriosa Rothschildiana, a new species with ruby-crimson flowers, edged golden.

drawn, the society is doomed to failure for this reason, viz., there will be plenty of available talent outside the society among those who are shut out, and those who will not join because of the injustice to others, consequently employers seeking gardeners will not be tied to the rules of the so-called British society, when they find they can be just as well suited outside it.

The general tendency in all businesses and professions to-day is to give the man with ability an opportunity to rise, no matter how humble a beginning he may have made, and it is altogether a retrogressive movement to attempt to limit the output of gardeners. All the available talent in the land should be given every opportunity for advancement, then the best will rise to the top, and those who prove the best will not always be those who have had the greatest opportunities. Another strong point in favour of the open door—which seems so far to have been overlooked—is, that by means of the Press, technical schools, scholarships, and free libraries, the advantages for acquiring knowledge are now so great that young men while working in humble positions have opportunities of equipping themselves for occupying the highest posts in the horticultural world.

both the Old and New World started with no natural advantages? yet the sages who direct the affairs of the British Gardeners' Association would slam the door in the face of such men by their odious clause about gardens of repute. British gardeners will not, however, for long be fooled by such reactionary schemes, but will demand that the door shall be open to all, so that the best men may rise, no matter where they started or from whence they come. Only by the recognition of this principle can real co-operation be secured, or the lot of gardeners improved.—H. D.

Gloriosa Rothschildiana.

This noble new species was one of the certificated plants which attracted very special attention at the Royal Horticultural Society's exhibition in the Temple Gardens on May 31 and June 1 and 2. It came from the Hon. Walter Rothschild of Tring (gardener, Mr. Dye), and seemed both vigorous, leafy, and free flowering. Our illustration shows a natural sized flower, and the latter is of a ruby crimson colour, edged with a band of golden tint, about $\frac{1}{4}$ in in breadth. The novelty is decidedly an acquisition.

NOTES & NOTICES

Appointment.

Mr. Alex. Gibson, late of the gardens, Langton Hall, Northallerton, Yorks, as gardener to Mr. R. K. Michlethwait, Zeals House, Bath.

Prince of Wales and the Royal Meteorological Society.

His Royal Highness the Prince of Wales has graciously consented to become patron of the Royal Meteorological Society. This gratifying intelligence was communicated to Commander Wilson-Barker, President of the Royal Meteorological Society, through Sir Arthur Bigge, private secretary to his Royal Highness.

Royal Gardeners' Orphan Fund.

We understand that the treasurer of this institution, N. N. Sherwood, Esq., has expressed his intention of giving the fund a special donation of £500.

Where are the Men?

A silver-gilt medal, the highest award for horticulture at the open competition held by the Royal Horticultural Society, has been obtained by Miss Verral, a lady student of the School of Practical Gardening of the Royal Botanic Society at Regent's Park.

Mr. G. H. Hollingworth.

Mr. G. H. Hollingworth has been appointed instructor of horticulture under the Gloucester County Council, and has now taken up residence in Gloucester. Mr. Hollingworth was associated for some years with the *Journal of Horticulture*, but more especially with *Garden Work*, after leaving which he acted as assistant to Mr. Walter P. Wright, horticultural superintendent to the County of Kent, in the neighbourhood of Ashford. From thence Mr. Hollingworth has now removed to Gloucester, where he assumes the duties of chief instructor, and in which we believe he will render excellent service to his new county.

Scottish Pansy and Viola Association.

The first monthly meeting was held in the Religious Institution Rooms, Buchanan Street, Glasgow, on June 22, for the purpose of awarding certificates to such new Pansies and Violas as might be deemed worthy. There was a good attendance, and many interesting varieties passed before the committees. The awards were as follows:—Fancy Pansies, first class certificate to Mrs. Q. MacFadyean, yellow edged (Dobbie and Co.); certificates of merit to Jessie L. Arbuckle, white edged (Kay); Provost Thomson, bronze colour (Kay); Mrs. W. Sinclair, lemon edged (Dobbie and Co.); Mary B. Wallace, yellow edged (Dobbie and Co.). Show Pansies:—Certificates of merit to Provost Thomson, dark self (Kay), and James Stirling, primrose self (Dobbie and Co.). Violas:—Certificates of merit to Effie, an improved Butterfly (Dobbie and Co.), and Criffie Smith, in the way of Dr. MacFarlane (Dobbie and Co.). Next meeting, July 13.

British Gardeners' Association.

The hon. sec. (pro. tem.) of the British Gardeners' Association, Mr. W. Watson, Kew Road, Kew, asks us to state on behalf of the Committee of Selection that owing to the pressure of correspondence, and there being as yet no paid secretary able to devote his whole time to the daily increasing work of the association, he hopes that intending members and others will excuse any delay there may be in answering their letters; also that those interested in the association and willing to forward its interests will render great service by applying for pamphlets and forms of application for distribution, or by sending him the names of qualified gardeners likely to become members. Donations towards the £250 required for the initial expenses will be welcomed, it being felt that when the services of a paid secretary and offices can be secured the association will speedily be able to make its presence and influence felt. The forms of application are now ready, and will be sent on application to intending members.

Mr. R. Lewis Castle.

Mr. R. Lewis Castle (Gold Medallist of the Fruiterers' Company), who was 9½ years manager of the Duke of Bedford's experimental fruit farm, is open to an engagement in any capacity where long practical commercial experience, together with scientific study of horticulture, is requisite. His address is Ridgmont, Aspley Guise, Bedfordshire.

Galega officinalis albiflora.

The common Goat's Rue, as *Galega officinalis* is popularly named, is found growing wild in various parts throughout southern Europe, and we all appreciate its value as an ornamental, free flowering, robust border perennial in our home gardens. The culture is of the simplest—plant it, and it will grow. At the same time, its special liking is for a good substantial loam in an open or even sunny part of the garden. Propagation is usually effected by division of the crowns in mid spring, and the plants may be left undisturbed for three or four years at least. The variety *albiflora* is a very handsome plant, and quite one of the best hardy subjects the gardener has. *G. o. bicolor* has white and blue flowers.

The Late Mr. Alexander Sclater.

It is with much regret we have to announce the death of Mr. Alex. Sclater, of Messrs. Thos. Methven and Sons, Edinburgh, which took place on June 23, aged 48 years. For some time Mr. Sclater had been suffering from some internal complaint, and about three months ago was seized with acute illness, to which he has now succumbed. He managed the seed department of Messrs. Methven's extensive business for about 28 years. He served his apprenticeship with Messrs. Methven, and after a short period with Messrs. Laird, was selected by the late Baillie Methven as head shopman, a position he has filled with great credit to himself and satisfaction to the firm of which he was latterly a partner. With gardeners he was a great favourite, and considered a high authority in most departments of seeds, but especially amongst Peas and all the Brassica family. He was a member of council and a vice-president of the Scottish Horticultural Association. Amongst the Edinburgh market gardeners he was a universal favourite. He was buried in the Grange Cemetery, Edinburgh, on Saturday last, a large number of friends attending the funeral. Many wreaths were sent, the most noticeable being from the Scottish Horticultural Association, the staff of Methvens, and the Edinburgh market gardeners.

Fruit and Vegetables.

The full effect of the genuinely summer weather we have had of late has not as yet been felt at Covent Garden. The Strawberry is the only produce of which any special show is made. The market is, indeed, flooded with this luscious fruit, enormous quantities coming in daily, not merely from the district bordering on Southampton Water, whence we get the Royal Sovereigns and Nobles, but from Cornwall, Kent, Surrey, and Middlesex. A matter which is arousing some feeling among fruiterers is the variation in the weights of the Southampton baskets, it being contended that there ought to be a more uniform system adopted, so that buyers could more readily estimate the quantity they were purchasing, and that there would be less risk of the retailer having palmed on to him a 4lb basket for one weighing 5lb. Excellent arrangements are made by the South-Western Railway Company for dealing with the Hants Strawberry crop, but there is an absence of rapid transit for fruit from Kent to the northern markets through the absence of a proper connection of the South Eastern train with those of the northern lines from London, and it was decided at a recent meeting of the National Fruit Growers' Federation to take immediate steps to endeavour to obtain a remedy for a state of things which so seriously handicaps the fruit-growing industry of Kent. So plentiful and cheap is the home supply this year that the foreign fruit grower, who has hitherto sent thousands of tons of Strawberries to the English market, stands no chance at all. Gooseberries are also very plentiful and cheap, but Cherries, for which Kent is famous, are not likely to show up well on account of the cold east winds. Among the vegetables, huge consignments of Peas are arriving daily, with the result that the price is rapidly diminishing, and Broad Beans are also very fine this year.

Societies.

Royal Horticultural, Drill Hall, June 28th.

The exhibition on Tuesday last was the last that will be held by the Royal Horticultural Society in the Drill Hall of the London Scottish Volunteers, where they have now been for the past seventeen years. After the Holland House Show the following exhibitions will be in the Royal Horticultural Hall just being finished in construction at Vincent Square, near the present hall. It was announced that the King and Queen had consented to open the hall on July 22, and that a limit of 1,000 visitors would be fixed.

This last of the Drill Hall exhibitions was of an exceedingly interesting character, containing groups of Cupid Peas, Dahlias,

collection of Masdevallias in flower. A splendidly flowered table of *Miltonia vexillaria* came from Mrs. Ernest Hilis, Redleaf Gardens, Penshurst (gardener, Mr. G. Ringham).

Fruit and Vegetable Committee.

There were a few exhibits before this committee, comprising Melons from the Horticultural College, Swanley; culinary Pea from Cannell and Sons, Swanley, named King Edward VII., sown in the open border the second week in March. The pods are 3in to 4in long, broad, and well filled. They also had "Leader" Strawberry.

Messrs. J. Veitch and Sons, Ltd., had Strawberry The Alake, which is a great cropper, the trusses long, and bearing very large fruits of the Sovereign shape.

Messrs. Laxton Bros., Bedford, had a number of novelties



Galega officinalis alba.

hardy flowers, orchids, fruit, Roses, Pansies, and foliage plants. In the afternoon a paper on "Hybridisation of Roses," from M. Vivian Morel, was read by the assistant secretary, Mr. Geo. Bumyard being in the chair.

Orchid Committee.

Messrs. Hugh Low and Co., Bush Hill Park, Enfield, were forward with *Cattleya Mendeli*, *Laelio-cattleya Arnoldiana*, *Laelia tenebrosa*, *Lycaste Deppei*, L.-c. x *Canhamiana*, L.-c. *Martinetti* var., *Phalaenopsis leucorrhoda*, and others.

Messrs. James Veitch and Sons, Ltd., Chelsea, S.W., had *Laelio-cattleya Aphrodite alba*, L.-c. x *eximia*, L.-c. *Canhamiana*, L.-c. *Vesta*, L.-c. *Willsiana*, *Cattleya* x *Eros*, and *C. Mossiae Wagneri*, all of the plants vigorous, healthy, and well flowered.

Mr. Ch. Vulsteke, Loochristi, Belgium, had some magnificent *Odontoglossums*; and the Hon. Walter Rothschild, Tring Park, Tring (gardener, Mr. A. Dye), had a splendid group or

in Strawberries, including Bedford Champion, an enormously large and handsome fruit of good flavour. Laxton's Supreme, The Laxton, and others were shown.

Lord Llangattock, The Hendre, Monmouth (gardener, Mr. T. Coomber), contributed a collection of Strawberry fruits of exceedingly high quality, the varieties being The Laxton, Leader, and Royal Sovereign. He had also fourteen splendid Pineapples.

Floral Committee.

Messrs. W. Cutbush and Son, Highgate, made a large exhibit, or rather a number of exhibits. A large group of flowering plants was arranged on the floor, *Delphiniums*, *Liliums*, *Phloxes*, and *Nymphaeas* forming the chief features, while a splendid group of *Malmaison* and other *Carnations* formed a side group. The most striking forms were The Churchwarden, Grace, Maggie Hodgson, Robert Burns, Nell Gwynne, Duchess of Westminster, and Trojan. Ferns and bamboos were

used effectively in this group. A nice table of *Verbena Princess of Wales*, a purple variety, completed the display.

Messrs. Kelway, Langport, confined their efforts on this occasion to a collection of cut *Delphiniums*. The background of the hall, however, killed the general effect. The spikes were very fine; a few of the most striking colours were *Duke of Norfolk*, *Dorothy Kelway*, *Lord Chesham*, *The Queen*, *Britannia*, and *Col. Crabbe*.

From Mr. R. C. Notcutt, Ipswich, came a good display of hardy flowers, which were nicely arranged. English *Irises* were staged in variety. *Campanulas* also formed a pleasing feature. *Hedysarum coronarium*, *Gillenia trifoliata*, and *Agrostemma Walkeri* were also noted.

Stove and greenhouse plants came from Messrs. J. Laing and Sons, Forest Hill. The plants were well grown and nicely set up. The *Caladiums*, *Crotons*, and *Dracenas*, and a few good *Alcasias*, were most noteworthy in the foliage section. A few good plants of *Anthuriums*, too, were interesting and distinct, J. Laing and Laingi being most conspicuous. The group was nicely finished off with *Ficus* and *Panicum*. The same firm also staged an excellent strain of *Gloxinias*.

F. Lloyd, Esq. (gardener, Mr. E. Mill), made a display of double and semi-double hybrid *Begonias*. The plants were of varying shades of red, with a drooping habit, perfect masses of bloom.

A fine collection of flowering and foliage plants came from Messrs. J. Cheal and Sons, Crawley. The golden foliage of *Quercus concordia*, *Sambucus racemosa*, *foliis aureis*, *Ulmus americana aurea*, and *Laburnum Cheal's New Golden*, being especially good, while the purple foliage of *Corylus avellana purpurea* and *Amygdalus communis purpurea* gave a pleasing colour. *Robinias* were also much in evidence, while a few clumps of *Liliums* and *Pæonies* completed a very interesting exhibit.

Messrs. W. and J. Brown, Stamford, made a miscellaneous display. The *Cactus Geraniums* (so called) were a feature, *Scarlet King*, *Lady Roberts*, *Salmon Queen*, and *Herbert Greenfield* being the best. *Verbenas* in variety. *Heliotrope Lord Roberts* and *Trachelium cœruleum* were also noted, and a collection of garden *Roses* were staged by the same firm.

Messrs. Barr and Sons, Covent Garden, made an extensive display of *Delphiniums* cut with huge spikes. *Pæonies* in variety, some fine *Calochorti*, and a collection of English *Irises*, which were well set up. *Huberta*, *Emperor William*, *L'Unique*, *Viceroy*, and *Lord Palmerston* being noted as particularly good. A few good vases of *Ixias* were also on view. The exhibit was lightly arranged, and produced a good effect.

A collection of foliage plants came from Mr. L. R. Russell, Richmond. They were chiefly of the decorative type, but all were well coloured. In the *Crotons*, *Andreana*, *Golden King*, *Chelsoni*, *Warreni*, and *Adonis* were most conspicuous. The group was edged with well-grown plants of *Caladium Argyrites*.

The Guildford Hardy Plant Nursery were represented by a group of *Rose Zephirin Drouet*, a free decorative variety of pleasing colour.

Hardy flowers came from Mr. M. Prichard, Christchurch, Hants. The leading features were *Lilium Martagon album*, a nice collection of Japanese *Irises*, *Crinum capense*, *Alstroemeria perigrina*, of grand colour, *Campanula Moorheimi*, *Astrantia carniolica*, and *Potentilla californica*, as well as many other choice plants.

Messrs. R. and G. Cuthbert, Southgate, presented a novel exhibit of staging—a table of *Gladioli* in pots. The plants were well developed and beautifully flowered. The varieties being *G. insigne*, *Blushing Bride*, *rosea maculata*, a beauty; *Peach Blossom*, *Rembrandt*, and *Lord Grey*.

Messrs. J. Peed and Son, West Norwood, made a display of hardy flowers, and three boxes of cut *Begonias*. The most striking plants were *Campanula linifolia*, *Aconitum lycoctonum*, some good spotted *Foxgloves*, and a variety of rock and alpine plants, which were arranged naturally.

Sweet Williams and English *Irises* came in strong force from Messrs. Jas. Veitch and Sons, Chelsea. The *Anricula* eyed section being superb, while the mixed colours showed great variety, with many delicate colours. The most striking *Irises* were *Euboa*, *Porcelain*, *Sceptre*, *Belle Agatha*, *Rose Pertuosa*, and *Speciosa*.

Mr. H. B. May, Upper Edmonton, made a brave show of *Crotons*, staging no less than eighty-two varieties, and not a bad plant amongst them. A few really good sorts were *Delight*, *Duke of Buccleuch*, *Thomsoni*, *Russelli*, and *Golden Fleece*. A pretty front was formed with plants of *Ficus repens*.

Messrs. Jas. Veitch and Sons, Ltd., Chelsea, made a nice display with some groups of *Streptocarpus* hybrids, the colours being excellent, while the flowers were large and the plants well flowered, clumps of *Kalanchoe flammea* gave patches of bright colour, while several flowering shrubs were also displayed.

English *Irises* were staged in strong force by Messrs. W. Bull and Sons, Chelsea, some of the newer varieties being excellent. *Beauty*, *Louis Margottin*, *Belle Agathe*, *Velvet Gem*, *Utica*, and *Lord Rosebery* were most conspicuous.

Cupid Sweet Peas were excellently staged by Messrs. H. Cannell and Sons, Swanley. The best varieties were *Boreatton*, *Enchantress*, *Chamberlain*, *Manve Queen*, *Prince of Wales*, *America*, and *Stella Morse*. Vases of the ordinary type were also on view, the brightest being *Lord Rosebery*, *Sue Earl*, *Jessie Cuthbertson*, *Dainty*, *Dorothy Eckford*, and *Janet Scott*.

Mr. Chas. Turner, Slough, had a small but choice collection of laced *Pinks*. *Duke of York*, *Maggie*, *Sorina*, *Mrs. Dark*, *Empress of India*, *Modesty*, *Lustre*, and *Bertha* were about the best.

Messrs. Dobbie and Co., Rothesay, staged quite a display of *Cactus Dahlias*, the blooms being undoubtedly good for so early in the year. The most striking were *Ajax*, *J. W. Wilkinson*, *Ibis*, *Plineas*, *Miss Winchester*, and *Mabel Leeds*. *Pansies* and *Violas* were also splendidly staged; in the former were *George Stewart*, *Nellie Meikle*, *Mr. C. Stirling*, *R. C. Dickson*, and the old *Neil Mackay*. The *Violas* were large and of good substance, *Saturn*, *Butterfly*, *Maggie Smott*, *Charles Jordan*, *Scotia*, *Isolde*, *Shamrock*, *Maggie Clunis*, *Nellie*, *Royal Sovereign*, and *Effie* being some of the best.

Roses were staged, Messrs. B. R. Cant and Sons, Colchester, having a glorious collection of garden varieties edged with some grand specimen blooms. In the latter were *Bessie Brown*, *Mrs. E. Mawley* (grand), *White Maman Cochet*, *Mildred Grant*, *Bey Cant*, *Prince of Bulgarie*, *Alice Lindsell*, and *Mrs. W. J. Grant*. The most conspicuous in the decorative section were *Maharajah*, *Dainty*, *Lucey Carnegie*, *Madame Ravary*, *Morning Glow*, *Marquise de Salisbury*, *Dr. Grill*, and *Liberty*.

A table of *Streptocarpus* from Lord Aldenham (gardener, Mr. E. Beckett), occupied the length of the hall, and created a mild sensation amongst the growers present. The plants were splendidly developed and a mass of flowers, which were arranged in blocks of colour.

Messrs. G. Bunyard and Co., Ltd., Maidstone, staged a collection of garden *Roses*, in which *Bardou Job*, *Perle d'Or*, *Papillon*, *Killarney*, *Cecile Brunner*, and *Madame Chedane Guinnoisseau*, also a collection of *Delphiniums*, some of which were well developed and nicely staged.

Messrs. Paul and Son, Cheshunt, staged a fine collection of garden *Roses*. The bunches were large, but well arranged, and were most effectively staged. The most conspicuous were *Triomphe de Pernet Père*, *Tea Rambler*, *Papa Gontier*, *Perle d'Or*, *Cheshunt Scarlet*, *Madame Jules Grolez*, *Lady Battersea*, *Madame Ravary* (a grand bunch), *Carmine Pillar*, *Madame Abel Chatenay*, *Papillon*, *Liberty*, and *Royal Scarlet*.

From Mr. Amos Perry, Winchmore Hill, came a large collection of hardy flowers, which were tastefully arranged in a high bank. *Liliums* were in great variety, *Potentillas*, *Campanulas*, *Calochorti*, well grown. *Ixias*, *Heuchera sanguinea*, *Rockets*, and *Nymphæas* were also to be seen, while large *Gaillardias* and *Delphiniums* lent additional colour to the exhibit.

Messrs. B. Ladhams, Shirley, Southampton, staged a collection of *Pinks*, with a few hardy flowers. The best *Pinks* were *Elsie*, *Florence*, *Nellie*, *Mrs. Ladhams*, *Rosy Gem*, and *Bridesmaid*.

Awards.

FRUIT AND VEGETABLE COMMITTEE.—Silver-gilt Knightian medal to Lord Llangattock. Cultural commendation to Mr. J. Epps, Jun., for *Papaw-fruit*.

ORCHID COMMITTEE.—Silver Flora to Hon. Walter Rothschild. Silver Banksians to Messrs. J. Veitch and Sons, Ltd., Hugh Low and Co., Chas. Vuysteke, and Mrs. E. Hills.

FLORAL COMMITTEE.—Silver-gilt Flora to Mr. E. Beckett, Elstree. Silver-gilt Banksians to Mr. H. B. May, Upper Edmonton; Messrs. W. Cutbush and Son, Highgate; and B. R. Cant and Sons, Colchester. Silver Floras to Messrs. J. Veitch and Sons, Ltd., Chelsea; Mr. F. Lloyd, Croydon; Dobbie and Co., Marks Tey; Paul and Son, Cheshunt; A. Perry, Winchmore Hill; and L. R. Russell, Richmond. Bronze Floras to Messrs. R. and G. Cuthbert, Southgate; and M. Prichard, Christchurch.

Certificates and Awards of Merit.

Cattleya Mossie alba, *Tracy's var.* (Mr. H. A. Tracey).—A very excellent flower, with fluted lip, coloured yellow in the throat, the flower otherwise white. A.M.

Croton, *Mrs. H. B. May* (Mr. H. B. May).—A lovely, tortuous leaved *Croton*, the centre rib bright rich yellow, the edges green, mottled with yellow. A.M.

Carnation, "*Joan*" (Mr. S. Morris).—A splendid border *Carnation* of a pale primrose colour, on moderately long stems. It is of large size, not too full, with smooth petals. A.M.

Delphinium, *Norman Hirst* (Kelway and Son).—A large purple-blue variety with prominent white centre, the spike about 3ft long, stout, and very finely shaped. A.M.

Delphinium, *Mrs. J. Bradshaw* (Mr. J. Bradshaw).—The flowers are round, 1½in across, on stalks over 2in long, and the colour is rosy-heliotrope in the inner segments, and bright light blue on the outer. The spikes are loose, however. A.M.

Lælio-cattleya Dominiana, *Tring Park* var. (Hon. Walter Rothschild).—Flowers very large and strong, with splendid rich ruby-purple velvety lip, edged lilac. The rose-purplish segments are nicely disposed, long and handsome. A.M.

Cupid Peas (Cannell and Sons).—Messrs. Cannell and Sons, of Swanley, were accorded an Award of Merit for their strain of Cupid Sweet Peas. We have never seen plants of these that anywhere approach them for bushiness, vigour, free-flowering qualities, large blooms, and good colour. The colours are very varied.

Pimpinella magna rosea (Mr. M. Pritchard).—An umbelliferous plant with pretty rose-carmine flowers, growing gracefully to a height of 2ft. A.M.

Philadelphus Lemoinei maculatus (Mr. M. Pritchard).—This seems distinct enough to be made a species. It certainly is very different from the typical *P. Lemoinei*. The flowers are 1in across, white, with a light magenta-purple centre. These are produced on wiry stiff stalks from the woody shoots. F.C.C.

Strawberry Reward (Laxton Bros.).—A large, cockscomb shaped, rich crimson fruit of pleasant, brisk flavour, very melting and juicy. It is a cross between Royal Sovereign and British Queen. A.M.

Strawberry The Alake (J. Veitch and Sons, Ltd.).—A large Strawberry of the Sovereign type, bearing long trusses. We were unable to taste the fruit. The cross was between Frogmore Late Pine and Veitch's Perfection. A.M.

Gardeners' Royal Benevolent Institution.

A Record Festival.

The annual festival gathering at the Hotel Metropole, London, in aid of the funds of the Gardeners' Royal Benevolent Institution, was held on Tuesday evening last, and was presided over by Harry J. Veitch, Esq., the treasurer. There was a large meeting, numbering over 200, among whom were representatives of all the well-known horticultural business houses from London and various parts of the country. The tables were decorated liberally with beautiful flowers and plants supplied by the nurserymen.

After the excellent dinner the chairman proposed the loyal toasts in terms pregnant with the warmest appreciation of the nation's Sovereign. Songs and recitations were interpolated between the other toasts. The chairman then proposed the toast of the evening, "Success to the Gardeners' Royal Benevolent Institution." Mr. Veitch said that gardeners were after all members of one large family, and it is only by God's goodness that we are not in need of the society's benefits. A copy of the history of the institution from 1839 to 1903 had been placed before everyone present (and this had been prepared without any expense to the society), and from it one could trace its steady development. The rules of 1839 had been so well drawn up that with only a few modifications they were still in use. During the first year only one pensioner had been placed on the funds, while now there were 207. The original president was the first Duke of Cambridge, father of the late Duke. Mr. Veitch went on to say that we need only think of the number of gardeners there are now, compared with those in 1839, to see that the calls for help were now infinitely greater.

The Institution is truly a national one, helping gardeners in Scotland, England, Ireland, and Wales. It is purely a philanthropic, charitable body, and by no means a benefit society. All deserving applicants are afforded help so far as that is possible. There are no inquiries as to the religious views of the needy ones: they must only be really necessitous.

The position at the present time is this, that 121 men are in receipt of the benefit, with 86 widows. Five of these are totally blind; two are over 90 years of age; 46 are between 80 and 90 years of age, and 111 are between 70 and 80 years. No one is elected who is under 60 years, though two were placed on the funds last January who were younger. One was 53 years of age, the other 51, and both suffered from total paralysis.

The yearly expenditure is £3,796, and all of this goes to the pensioners, except the amount needed for the small office and for the secretary's salary, whose only assistance is one youth. The ensured income is £870 yearly, derived as interest on invested capital, and the subscriptions amount to £1,500 to £1,600. Mr. Veitch observed that the society is morally pledged to support those 207 pensioners, and he pleaded for contributions. Bad times may come when the capital or invested funds might have to be encroached upon, and it was to avert anything like this that farther moneys were solicited.

Besides the general fund, there are two others, the Victorian Era and the Good Samaritan, each of which helps those who are needy and are waiting for election. Last year £159 2s. was expended from the Victorian Era Fund. There are six or seven most useful auxiliary branches of the Institution: one each at Bath and Bristol, Wolverhampton, Reading, Worcester, and Exeter.

The chairman's speech was certainly one of his best oratorical efforts, the fact upon fact being delivered with great lucidity, and not lacking in vigour, while the earnestness and self-abnegation of his manner carried the appeal to the hearts of the assembly. The meeting, as we have said at opening, was a

record one, and will long remain impressed upon the memories of those who were privileged to be present. And it was to Mr. Veitch, more than to any other person, that the success was so full and complete.

The response to the chairman's toast was in the hands of Mr. George Dickson, V.M.H., senior partner of Messrs. Dicksons, of Chester, who instanced the duties of gardeners, and showed that to their efforts were due a very large share of the delights of the life. Mr. Dickson, in one of his remarks, deprecated the allusions to so much science that is thought to be necessary for successful horticulture nowadays, and while he respected the assistance that science, rightly applied, could give, yet he urged that practice must be vigilantly and carefully pursued.

The toast of "Horticulture in all its Branches" was proposed by Mr. Jeremiah Colman, of Gatton Park, Reigate, and Mr. J. Gurney Fowler, treasurer of the Royal Horticultural Society, responded, impersonating "Horticulture." Speaking of "Horticulture," Mr. Fowler showed what had been done to bring about the high excellence of present-day gardening and garden produce.

The succeeding toast was that of "Our Chairman," by Mr. Arthur W. Sutton, of Reading. Mr. Sutton began with a reference to the fact that the chairman's birthday occurred on the morrow after the Festival, and in the name of the company he wished him many happy returns of the day. As many people would be reading the reports of the meeting, Mr. Sutton thought that he might be allowed to say something in regard to Mr. Veitch's career; and this was the more desirous because that the chairman was so beloved and so widely known by all classes of horticulturists, the working gardener particularly. "In the country," said Mr. Sutton, "he is spoken of as our Harry Veitch, and the Christian name is always given thus, showing the free regard by which he is held." Mr. Veitch was born on the 29th of June, 1840, and was educated at Exeter Grammar School. Later he went to Germany in order to thoroughly acquire the language, and he also studied at Paris. The University College, London, provided the young gentleman with a training in those branches of science that he has so assisted during later years. It was this early and complete training that fitted Mr. Veitch to become one of the great leaders in horticulture during our day.

In 1866 Mr. H. J. Veitch took a prominent part in the great exhibition; and he attended the first international exhibition ever held in Russia, being received by the Czar of that date. In 1870 he became head of the firm at Chelsea, where he remained till a year or two ago. As an author, there were two well known works produced under his supervision, the "Manual of Coniferae," and the "Manual of the Orchidaceae," both of which are large and thorough.

Mr. Veitch joined the Council of the Royal Horticultural Society when it left South Kensington, and he has remained as a councilman till the present time. Mr. Sutton alluded to the chairman's revered father, and observed that the son had a wider knowledge of plants than the late respected gentleman; and his outlook on the world was also wider. Mr. Veitch's services to science, he thought, had never been half appreciated. The year of the chairman's marriage was 1867, and one year later he joined the committee of the Gardeners' Royal Benevolent Institution, "which has had his fatherly care ever since." The assistance and encouragement given to her husband by Mrs. Veitch, was not forgotten, and to her there is much that is due. The office of chairman of committee was accepted by Mr. Veitch in 1894, and he has continuously adorned that responsible position, besides being the treasurer.

Privately Mr. Veitch does an immense amount of good, entirely supporting in his own Chelsea neighbourhood two missionary institutions; and Mr. Sutton had seen a gathering of 400 at the chairman's estate at Burnham Beeches, these being invited for an outing at Mr. Veitch's expense. Nor should his services to the sister charity—the Royal Gardeners' Orphan Fund—be forgotten, for the esteemed gentleman actively engages in its operations.

Sir Walter Smythe proposed a toast to Mr. Geo. Ingram, the secretary (who was loudly cheered, for he is deservedly popular), and Mr. Ingram suitably replied.

At the conclusion of the toast list Mr. Ingram announced the following subscriptions, but we are only able to record the list of the larger sums in this issue:

The chairman, 100 gns; Mrs. Harry J. Veitch, 25 gns; Mr. N. N. Sherwood, £500; James Veitch and Sons, Ltd., 100 gns; Messrs. Rothschild, 100 gns; Sutton and Sons, 100 gns; Arthur W. Sutton, 15 gns to Victorian Era Fund; Leonard Sutton, 10 gns to Good Samaritan Fund; Baron Sir Henry Schröder, £100; W. L. Corry, 63 gns; J. Gurney Fowler, 50 gns; Mr. Solomon, 50 gns; Jeremiah Colman, 50 gns; Mr. Watkin, £38 15s.; W. Cooper, £39; W. Robinson, £25; R. M. Hogg, £25; Mr. Higgs (Manchester), £20 10s.; Hurst and Sons, £21; James Sweet, £20; Mr. Parr, £20; Mr. Prophet, £20; D. W. Thomson, (Edinburgh), £20; Mr. Harrow, £17 10s.; H. Hicks, 15 gns; Thames Bank Iron Co., 18 gns; H. G. Cove, 13 gns; J. Heal, 13 gns; E. F. Hawes (Royal Botanical Society), 12 gns; Geo.

Paul, £13 8s.; Sir Trevor Lawrence, Bart., £10; Geo. Dickson, £10; Barr and Sons, £10; Peter Veitch, £10; and many other donors of £10 and lesser sums whose names we were unable to note. The Covent Garden table subscribed £407 10s., of which Mr. Ed. Rochford's list included £50 from himself; £10 from John Rochford; 5 gns from Mr. Kennell; and 10 gns from Mr. Ray. Mr. Geo. Monro's list had 25 gns from himself, with Geo. Monro, Ltd., £20; James Sweet, 10 gns, and £5 to Good Samaritan Fund; and J. Assbee, £20 9s. 6d.

Worcester Auxiliary had promised £75 for this year, and Reading £73 9s., together with a small sum from Exeter. The secretary was also able to announce 52 new annual subscribers of one guinea; six of two guineas; and two of five guineas each.

The grand total of subscriptions for the present festival amounted to £3,500—a record list. We must not omit to say that much of the success was due to the work of the stewards and other friends.

University College, Reading.

Opening of the Garden by Lord Onslow.

The new garden of the horticultural department of University College, Reading, was opened by the President of the Board of Agriculture on Friday last. Horticultural and agricultural schools and colleges have increased with great rapidity during



Mr. FREDERICK KEEBLE, M.A.
Director of the Department of Horticulture
By favour of the Reading Standard.

recent years, and Reading, as the county town of a good agricultural shire, has its university, where diplomas in the first of industries are granted. The horticultural instruction at Reading is thoroughly sound and embrative. A new garden, whereby the best possible practice can be given on a large scale, has been acquired, and one of the ablest gardeners of England, Mr. Charles Foster, F.R.H.S., was a year ago appointed to the superintendence of it. Working in harmonious conjunction, and taking the responsibility of the scientific side of the instruction, is Mr. Frederick Keeble, M.A., who is a director of the Department of Horticulture; and with these two well-equipped gentlemen and an efficient staff, we hold great

hopes for the future fame of the Reading College as a teaching centre of horticulture.

The work of the horticultural department consists in:—

1. The training of men and women in the practice and science of horticulture. Regular courses of instruction are held in the college laboratories and at the garden.

2. The contribution to horticultural knowledge by experiments in the manuring of crops, the improvement of plants by breeding, the testing of new varieties, and the prevention of plant diseases. During the session 1903-4, the department is carrying out, in co-operation with the National Potato Society, tests as to the relative values of the chief varieties of Potatoes.

3. Advising on matters pertaining to the practice of horticulture. The department gives expert advice as to the laying out and maintenance of gardens, the management of orchards, the use of artificial manures and the remedies to be employed in dealing with plant diseases. For terms, application should be made to the director of the college.

The college garden, situated in London Road, Reading, was placed at the disposal of the college by Mr. Alfred Palmer, J.P., of Wokefield Park, Berks. It is $7\frac{1}{2}$ acres in extent, and consists of orchard, vegetable, and flower gardens and shrubberies. The garden is well provided with horticultural buildings, viz., potting and packing sheds, office, laboratory, and demonstration room, workshop, fruit store, soil, pot, bulb, and others stores and sheds. It contains a large number of pits and frames, and thirteen glass houses, which were lately occupied by Messrs. Sutton and Sons. The houses include stoves and greenhouses, vineries (early and late), and Peach house, and are used for plants and fern-growing, general florist work, market work, and the culture of Grapes, pot fruit trees, &c. Students spend upwards of twenty hours per week at the gardens, and, in addition, pay visits to neighbouring private gardens, as well as to Messrs. Sutton and Sons' trial grounds, the shows of the Royal Horticultural Society, and the Royal Gardens, Kew.

The foregoing briefly explains what is attempted, and describes what amount of glass structure there is, and also the amount of the land at disposal for the new botanical laboratories

&c., and for general cultivation. It will thus be seen that by the foundation of this new school at Reading we have a nearer approach to the larger schools of the same kind in the United States, than any of the hitherto existing ones in England.

Shortly before four o'clock the company assembled in a large marquee to take part in the opening ceremony. In the absence of the President of the College (Mr. J. H. Benyon, J.P.), Mr. Owen Ridley, J.P. (Chairman of the College Council) presided, and he was supported by the Earl of Onslow, G.C.M.G., Sir S. Busk, Mr. Alfred Palmer, J.P., Mr. W. M. Childs, M.A. (the Principal of the College), the Mayors of Reading, Wokingham, Henley, Newbury, Southampton, and Winchester, Mr. G. H. Morrell, M.P., Lord Saye and Sele, Mr. Martin J. Sutton, Mr. Arthur Sutton, Mr. Leonard Sutton, Mr. C. E. Keyser, Mr. J. H. Mackinder, M.A., Mr. Frederick Keeble, Mr. F. H. Wright (registrar), &c., &c. Lady Wantage, Lady Dorothy Onslow, Mrs. Benyon, and Mrs. Alfred Palmer occupied seats near the platform.

In his speech on the objects of the department the Principal said: "I suppose if we ask why is this horticultural training undertaken the answer will be this—it is undertaken owing to the conviction that, having regard to the enormous advance of scientific knowledge which relates to the growing of plants and vegetables, having regard also to the increasing intensity of competition, to get a living of any kind whatever, it has become in this country no less than in the United States and Germany absolutely necessary to revise the methods of preparation for entrance into an industry, even as familiar and as old an industry as that of the gardener. The point is that the knowledge which formerly might suffice, suffices no longer, and that success, in this industry, as in so many others, will come in the future less and less to the knowledge which is merely rule of thumb knowledge, and more and more to the capacity which is the result and offspring of properly trained intelligence."

He continued: "The students who come here work for a diploma, the granting of which is authorised by the University of Oxford, the conditions of which are governed by a committee, which represents both the University of Oxford and the College at Reading, and includes representatives of the Royal Agricultural Society and the Royal Horticultural Society. In addition to this course, which lasts at least two years, and may last three, the students also take on the well-known examination of the Royal Horticultural Society, and I am pleased to say that just recently 16 of them, I think it was, entered for that examination, and Mrs. Benyon has kindly consented to present the certificates to the 16 successful candidates before the close of the proceedings."

Lord Onslow remarked that those present might perhaps be surprised that it should be the President of the Board of Agriculture who should be invited to open a horticultural ground. "If you look in the dictionaries," he said, "you may not find the definition, but if you look into the Statutes of the Realm you will find that horticulture is agriculture, and that it is to the President of the Board of Agriculture that are entrusted the interests of horticulture in this country. That I think cannot be demonstrated more clearly than by the fact that the administration of the gardens at Kew is placed under the President of the Board of Agriculture, and it is, therefore, a matter of great rejoicing to me that I am able to come down and to express as I do the great approbation of the Government that you are in a position here in this University College of Reading to extend the advantages of education in the subject of horticulture to those who come to your University College. I should like to specially accentuate the desirability of facilitating the teaching of the principles of horticulture to those whose duty it will be to impart elementary education in our schools."

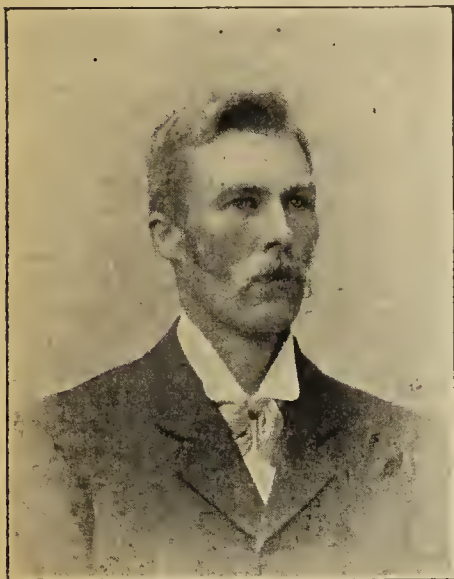
"Turning to other aspects of the teaching which you impart, I rejoice with your principal to see that while you teach science and theory, you do not neglect practice. One of the most important, if not the most important, things in my opinion, is that those who produce agricultural and horticultural produce should know how to present it to the eye of the purchaser. It has been the custom of the English producer to think that if he has a good tree of Plums, for instance, all he has to do is to shake them down in a basket and send them to the market. That is not what the foreign fruit growers think. They carefully select the large from the small ones, and pack them in boxes, so that the purchaser sees an aggregation of Plums of one size. I hope the marketing of produce will be one of those things which you will most seriously impress upon the minds of those whom you are about to educate."

We have agricultural colleges, but I do not think there is any other place in England where the practice of horticulture is likely to be conducted on such efficient lines, as, from the short inspection I have been able to make, is evidently to be the case here in Reading. In Reading you are in a horticultural midst. You have all round you great horticultural firms, not the least being that which is headed by my friend Mr. Martin Sutton, and I am quite certain that if horticulture is to flourish anywhere it will be in the County of Berkshire. Ladies and gentlemen, on behalf of the Board of Agriculture, I heartily

thank you for all you have done to bring to a successful issue this department of your University College. I wish it every prosperity, and I now declare it from to-day open!

A visit of inspection was made to the houses and exhibits of the students of the horticultural department, a sketch plan on the back of the programme indicating the position of the various houses and exhibits, enabling the visitors to find them without difficulty. The staff of the department and the students acted as stewards, the wearing of green and white rosettes distinguishing them from the rest of the company.

The special exhibits included: (a) Living and preserved specimens of common insect and other animal pests; their life histories, remedies, and preventive measures. (b) Plant breeding; diagrams and microscope preparations showing the fertilisation of flowers, the structure and development of pollen. (c) Fungoid diseases; living and preserved specimens, microscope preparations and diagrams illustrating the life histories of common fungoid pests; the germination of fungus spores; the materials used to prevent or eradicate disease. (d) Grafting demonstration; students practising the various methods of grafting. (e) Marketing: exhibit of garden produce in marketing shed. (f) Experiments illustrating the work of plants; the transpiration of water by plants; the manufacturing processes in plants; the influence of light, darkness, and light of various colours on plant life; measurement of growth; the influence of gravity on plants; sensitive and insectivorous plants. (g) Spraying; demonstration on the preparation and use of Bordeaux mixture; spraying Potatoes and Tomatoes. (h) The life histories of plants; the vegetative propagation of plants; parasitic and semi-parasitic plants; herbarium and water-colour sketches of British plants. (i) Floral decoration; table decoration; bouquets and buttonholes. (k) Bee demonstration: Observation hive; honey extraction and bottling; preparation of sections.



Mr. C FOSTER, F.R.H.S.
Instructor in Practical Horticulture.

By favour of the Reading Standard

The garden was in the most excellent condition, and the entire function was highly successful.

Mr. Brotherston Accorded the Neill Prize.

At a meeting of the Council of the Royal Caledonian Horticultural Society held in Edinburgh on June 22, the Neill Prize of £30 was awarded to Mr. R. P. Brotherston, gardener to the Earl of Haddington, at Tynninghame, East Lothian. This prize is awarded every second year to some distinguished Scottish botanist or cultivator from the interest of a legacy received in 1856 from Dr. Patrick Neill, the first secretary of the society, and is much coveted. Mr. Brotherston was born in Roxburghshire, is now 56 years of age, and commenced his career at Newton Don, where he served his apprenticeship under Mr. Wm. Thom. He then had a varied experience at Leuchie, at Loxford Hall, under Mr. J. Douglas, V.M.H., and with Sir James Bumbes, at Argyle Lodge, Wimbledon. He has now been 30 years at Tynninghame. Mr. Brotherston is one of those earnest Scotsmen who make their work their hobby, and he evinces the greatest interest in all he undertakes. He is specially successful in growing hardy fruit, ornamental and flowering shrubs, and herbaceous plants, and does not neglect old varieties, if good, whilst he endeavours to find out all points in the newer sorts. The gardens at Tynninghame show that they are under the care of an enthusiast. Mr. Brotherston also wields the pen. He contributes to several gardening journals and magazines, and one of his latest writings is a book on the "Carnation," recently published. Having been brought up to do everything for himself through all stages of his labours, and taking a deep interest in it all, he may be taken as a good example of what a really eminent gardener ought to be. His name adds one to a list of many distinguished men who have been awarded this prize. His knowledge of the history of horticulture is, we believe, unexcelled at the present time, and the series on "Old-time Gardening," now appearing in the *Journal*, are from his pen. This new honour is thoroughly deserved.



Hardy Fruit Garden.

CORDON GOOSEBERRIES AND CURRANTS.—Shorten back the side shoots of these to the fifth or sixth leaf, training in the terminal growths their full length. Avoid cutting the lateral growths closer than advised above, or the buds in the axils of the leaves will burst into a mass of weak spray. Bush Currants may also have the summer shoots shortened about half their length, this will facilitate the work of netting, and allow light and air freer passage to the fruit and remaining growths.

LAYERING STRAWBERRIES.—Apart from the plants required for pots, the required number of these should be laid down for forming new plantations. Strong young plants, obtained early in pots or turves, will, if planted in firm, well-prepared land, yield heavy crops the first season. In light soils this practice of frequent renewal of the plants is a necessity, if large crops of fine berries are required. If neither turves nor pots are available, peg the runners into the soil of the beds, after first loosening it with a fork, and give water until the layers are rooting freely. They can then be lifted with good balls of earth, and will suffer but a slight check on removal to permanent quarters.

FEEDING APPLES AND PEARS.—If fine fruits of these are desired of exhibition form, the trees bearing these must be liberally fed. Thin the fruit to the proper number on each tree (according to the habit and size of the varieties), and apply manure water once a fortnight if the trees are not too vigorous. The liquid food should always be given when the soil is moist, following rain, or an application of clear water.

YOUNG FRUIT TREES.—If the present dry weather continues it may be necessary to water those planted on light shallow soils. Should the trees show a lack of vigour, and are making little progress, give water as required, mulching to prevent evaporation. No effort should be spared to induce good sturdy growth in the early stages. When young trees do not get well away at the outset, they too frequently present a dwarfed, stunted appearance for some years afterwards.

OVERCROWDING OF RASPBERRIES.—The practice of allowing the suckers to form dense thickets around the fruit-bearing canes cannot be too severely condemned. Not only is this detrimental to the fruit, but the growing canes, to afford next season's fruit, are severely handicapped when drawn and smothered in such a manner. Remove all weakly growths, and those growing furthest away from the supports, allowing approximately a sufficient number for next year's bearing.

INSECT PESTS.—Peaches and Cherries on walls are apt to become the prey of aphides if the pests are not checked. Syringing with clear water once or twice a week will do much to maintain the former clean and healthy, but if green fly makes an appearance, dressing with a liquid insecticide or tobacco powder should at once be resorted to. When the attack is only slight, dipping the infested shoots in tobacco water will be found a sufficient remedy. The black aphid is liable in the press of work at this season to obtain a strong foothold on Cherries. One or two dressings of abol, or a solution of quassia and tobacco, followed by syringing with clean water, will usually be found effective in dislodging this persistent enemy. If Peaches have a sufficiency of root moisture, and the syringings as previously advised, there need be feared but little trouble from red spider.—J. W., Newent, Glos.

Fruit Forcing.

VINES: EARLY FORCED HOUSES.—When the Grapes have been cut the Vines should be thoroughly syringed to cleanse them of dust and insect pests. The worst of these is red spider, which in its countless numbers so impoverishes the leaves that they fall prematurely, and the buds are then so ill-formed and nourished that the growths from them in the following year are weak and the fruit poor. Moderate extension of the laterals should be encouraged from the extremities only. Vines must not be allowed to go to rest prematurely, or they will make a second growth late in the season. Ventilate to the fullest extent day and night, and if the roof lights can be removed all the better.

GRAPES COLOURING.—The free circulation of rather dry warm air contributes to high flavour and good finish. Vines struggling with a heavy crop should not be subjected to so high a temperature as those which are luxuriant and carrying no more fruit than can be considered a fair crop, but rest must be afforded them at night by allowing the temperature to

fall to 60deg. Afford a fair supply of water, moistening the soil through to the drainage, and mulching the border with an inch or so of short sweetened manure will conserve the moisture and attract the roots. Outside borders in most cases have been sufficiently moistened by the recent rains. Moderate air moisture is necessary for the foliage, damping down in the morning and afternoon, but a close atmosphere is fatal to colour and bloom, and is likely to induce "spot" in the tender, thin-skinned Grapes, such as Duke of Buccleuch and Muscat of Alexandria.

WATERING.—The warm rains of summer, charged with ammonia and nitric acid, give an impetus to growth, and watering inside borders with the water collected in tanks acts similarly. The water dislodges the soil-air and admits fresh, as well as cleanses the border from impurities where the drainage is thorough. After properly moistening the border, follow with liquid manure or a top-dressing of fertiliser washed in where the Vines are carrying heavy crops. Sweetened horse manure is suitable for surfacing heavy soil, farmyard or cow manure answering better for light soils. Do not apply more than an inch or two, and then add to it from time to time so as to keep that thickness, and so supplying nourishment regularly. To let the border get dry, and so remain at the surface, causes the roots to strike down in quest of moisture, and the Grapes often finish badly in consequence.

YOUNG VINES.—Syringe copiously in the afternoon of fine days, and close early so as to husband the sun's heat, mulching the border to keep the surface moist, affording water or liquid manure when necessary. Stop lateral growths to one leaf, then the sub-laterals may be allowed to extend on permanent Vines, but on supernumeraries the canes should be stopped when 9ft in length, the laterals at the first leaf and the sub-laterals to one joint as made, keeping them clear of the principal or cane leaves. The latter must be kept free, and allowed to die naturally, so that the buds at their base may be well formed and nourished.—G. A., St. Albans, Herts.

The Flower Garden.

ROSES.—Roses in beds, borders, and on walls are now flowering well, many plants having yet a profusion of buds which require developing. Any that are weak or deformed may be removed with advantage to the better placed and perfect buds. To assist these developing to full size and colour see that the roots are kept moist, and a due proportion of rich food supplied in the form of liquid manure. A mulching of manure over the roots will also conserve moisture, and serve to evenly distribute the liquid supplied. Remove any useless shoots or suckers, and as blooms fade, the appearance of the plants will be improved by cutting them off. If through deficiency of moisture insects have attacked the shoots, clear them off with an insecticide, or syringing with clear water. A good solution for green or black fly consists of 2oz of softsoap dissolved in a gallon of water. Mildew is another enemy brought about from dryness or poorness of the soil, usually infesting the young wood. It may be combated by syringing with the above solution to which flowers of sulphur have been added, or dusting damp growths with the dry powder. Cut out the old wood from the early flowering climbing Roses.

PROPAGATING PINKS.—The young shoots of Pinks are now strong and firm, and in a right condition for propagating. By inserting them now they have a good chance of forming well rooted plants for transplanting in autumn. Prepare a piece of ground on a shady border, working in some sandy soil, and make firm and level. The pipings or cuttings may be about 4in long, removing the leaves at base, and shortening the tips. Insert them firmly 3in apart, water and shade from the strongest sunshine. A sprinkling daily will be beneficial, as it helps to keep them fresh, by which they form roots more quickly.

LIFTING BULBS.—Tulips, Hyacinths, and early-flowering Narcissi, the leaves of which have died down, may now be lifted and dried, storing them away for the present. When replanting select the largest and firmest bulbs.

SOWING BIENNIAL STOCKS.—A sowing ought now to be made of Brompton and Queen Stocks, these varieties being very useful for spring flowering. Grown in a sheltered spot they are moderately hardy, the Queen class being the best for exposed positions. The seedlings when large enough should be pricked out separately, as by this means only are bushy rooted plants obtained for planting out in permanent positions in autumn.

SWEET PEAS.—Afford the necessary attention to these to encourage them to flower freely, and continue doing so. In dry positions give the rows a good soaking of water, and conserve the moisture in the soil afterwards by a liberal mulching of manure down each side of rows. Daily attention will be required by the early flowering rows or clumps in cutting off the seed pods. Liquid manure will be beneficial, and may be given freely to the roots over the mulching laid down.—E. D. S., Gravesend.

THE BEE-KEEPER.

Utilising Swarms.

Many bee-keepers make a great mistake in assuming that when a swarm is hived on the stand which it is to occupy that it will require no further attention or care, but will, in the ordinary course of events, draw out the bars and store honey abundantly. After observing the actions of swarms few will deny that it is utterly impossible in all cases for them to obtain sufficient honey to feed their brood and build all their combs. The comb building impulse invariably takes possession of bees which compose a swarm, and it is to the apiarist's benefit to secure the full advantages of this by assistance, instead of checking it, which would be the case if from any cause the income from natural sources was discontinued during a spell of bad weather.

When the supply of food is maintained, the queen is supplied with plenty of newly-built cells to lay in, and there will be by the time the honey flow is again renewed, a far stronger population to take advantage of it. Anything calculated to retard comb building or ovipositing should be carefully prevented. It is much better if the swarm is an early one to feed it continuously until the whole brood chamber is completely drawn out, and the population proportionately strengthened in order to yield the best profit to the bee-keeper. In feeding swarms during temporary bad weather, care must be taken to ascertain that the feeder is not in a position where it will be entirely neglected. This sometimes happens when the swarm is not sufficiently powerful to cover the whole of the frames in the body box, and they cluster then generally on the sunny side of the hive, while the feeder may be placed over a central hole, and is consequently not directly over the bees.

If possible it should be estimated whether the swarm will require the whole number of frames, and if not, only the requisite space allowed them, otherwise the exact position of the cluster must be ascertained, and the food administered over the centre of it without disturbance to the bees. If a swarm comes off when the honey flow is at its height it should be hived on about six or seven frames, and contracted by means of dummies, placing a super above and excluder between. All the honey will then be placed in the super above, where it may be taken away as required, and the harvest from the swarm will be in some cases almost as great as if they had been working with the parent stock. As there is practically little or no honey stored in the brood nest after such management, the stock, after the removal of the honey, must be fed immediately, or there will soon be the usual signs of starvation manifest.

Swarms should never be returned to the stock from which they came unless all the royal cells are first excised, otherwise they will assuredly swarm again, and should a virgin queen have hatched in the meantime, the laying queen will probably be killed. If increase is not desired, the hive-containing the swarm should be placed close to the old site, the parent stock reduced to the number of bars they cover, and when the young queen is laying in the old colony the two may be united after depositing the old queen.—E. E.

An Early Morning Swarm.

I had a swarm (not a cast) of bees from a straw skep this morning (Friday, June 24), at 8.30 a.m. Would "E. E." or "Hybia" (whose casual notes are very beneficial to me) say if they have had a similar experience of a swarm going off at so early an hour? The morning was dull, but temperature 55deg Fahr.—N. R., Glasgow.

Meteorological Observations at Wisley, Surrey.

Taken in the Royal Horticultural Society's Gardens—height above sea level, 150 feet.

Date.	Temperature of the Air.				lowest temperature on Grass.	Temperature of the Soil. At 9 A.M.			Rain.	Wind.		Sunshine.
	At 9 A.M.		Day.	Night.		At 1-ft. deep	At 2-ft. deep	At 4-ft. deep		Direction.	Total velocity for the 24 hours ending 9 a.m.	
1904.	Dry Bulb.	Wet Bulb.	Highest	Lowest.								
June.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	Ins.		Miles.	h. m.
Sun. 18	55	52	64	43	41	59	59	56	—	S.W.	128	3 47
Mon. 20	59	54	68	54	52	60	59	56	—	W.	163	7 32
Tues. 21	58	52	62	48	41	60	59	56	—	N.W.	59	4 23
Wed. 22	60	53	70	46	36	59	59	56	—	S.	83	11 57
Thurs. 23	62	55	71	43	38	61	60	56	—	N.W.	45	12 50
Fri. 24	65	57	71	48	41	62	60	56	0.11	S.	227	6 14
Sat. 25	58	54	63	52	50	61	60	57	0.13	W.	143	3 48
MEANS	60	54	67	48	43	60	59	56	Total 0.24		122	7 13



* * All correspondence relating to editorial matters should be directed to "THE EDITOR," 12, MITRE COURT CHAMBERS, FLEET STREET, LONDON, E.C. It is requested that no one will write privately to any of our correspondents, seeking information on matters discussed in this Journal, as doing so subjects them to unjustifiable trouble and expense. In naming plants we only undertake to name species, or well-marked varieties, and only six on any one occasion. Florists' flowers we do not name.

SOUVENIR DE MALMAISON CARNATIONS GOING OFF (S. D.).—No wonder that the plants received two months ago in 6-in pots, kept shaded in a Peach house and syringed twice daily, have rotted off, your idea of their being kept too moist being the correct one! Malmaison Carnations are usually raised from layers in July or August outdoors or in a frame, the old plants being planted out as soon as flowering is over, and when well rooted detached and potted singly in 3in or 4in pots, according to the size of the plants. For potting soil, use good fibrous sandy loam three parts, and one part rotten manure, with enough sand to keep the whole sufficiently porous to admit of the free passage of water. After potting, which should be moderately firm, give a good watering, and keep in a close frame for a week or two, until root action is resumed, when air must be given freely. In September the plants should be removed to a greenhouse, assigning them a position near the glass, and where they can have plenty of air and room sideways. Until the beginning of February, when, as a rule, the plants begin to grow, great attention must be paid to watering. They must be kept somewhat rather dry than excessively wet, as the greatest enemy in winter is damp. If kept too wet, a disease known as "spot" is likely to appear on the foliage. When the pots are filled with roots, say in February, the plants may be shifted into 6in or 7in pots, using a compost of two parts good fibrous sandy loam, one part leaf mould, and one part good old rotten manure, to which may be added a good sprinkling of coarse gritty sand. Provide good drainage, and pot moderately firm. Water carefully for a time, and when growing freely water copiously, using liquid manure when the pots are filled with roots. Keep well up to the light, give plenty of air, and the bloom will come fine.

REMEDY FOR RED SPIDER ON VINES (A. B.).—The only thoroughly effectual and safe remedy is hydrocyanic acid gas, and this is certainly not a safe article to use unless with the utmost care, as the fumes are fatal to animal life, therefore must not be inhaled by the operator. For generating the gas fused 98 per cent. potassium cyanide, commercial sulphuric acid and water, are used in the proportion of 1oz (avoirdupois) of potassium cyanide to 1 fluid ounce of sulphuric acid, and 2 fluid ounces of water per 180 cubic feet of space enclosed. The water and sulphuric acid are placed in an earthen vessel in the order named, the acid being poured slowly upon the water instead of pouring the water on the sulphuric acid, in order to avoid explosions in the vessel placed in the structure, the potassium cyanide is then dropped in, and the operator quickly withdraws and closes the house. Care, extreme, we repeat, must be exercised in applying this method of treatment, as the potassium cyanide and the gas generated are very poisonous. Messrs Cross and Sons, 79, Mark Lane, London, supply Necros Vaporising powders in sets, No. 1, equal to 15,000 cubic feet, and No. 2 equal to 7,500 cubic feet, at 3s. and 2s. respectively, with apparatus at 2s. 6d. each, for generating hydrocyanic acid gas, but of their use we have no data. Campbell's Patent Sulphur Vaporiser is a great advance upon sulphuring the hot-water pipes, and when pure flowers of sulphur is used the fumes or vapour is not injurious to Vines, &c. Of course, anything can be overdone, and then the measure of injury is corresponding. Some remedies, such as Spidicide, are tainting to the Grapes, and are best avoided. For this reason a large grower (some 40 acres of glass) treats red spider in Vines with water only, applying by means of a hose pipe held closely to the under side of infested leaves, regulating the spray with finger, and thus clears away the pests with their webs and eggs. This, taken in time, does not affect the Grapes prejudicially. We have found the very tedious process of spraying over infested leaves on the under side and places of infection singularly effective, and about the only thing that can safely be done when the Grapes have commenced colouring. The sponge should be dipped in a soapy solution, 2oz or 3oz. softsoap to a gallon of water, and squeezed so that "running" is avoided. This is what we advise from experience as most serviceable and safe,

taking care not to brush the Grapes. Perhaps some correspondent will give experience of hydrocyanic acid gas in the case of Vines infested with red spider and mealy bug.

THE GERMANDER PLANT.—The common Germander is *Tenerium Chamædrys*, which is esteemed chiefly as a mild aperient and corroborant in uterine, rheumatic, gonty, and scrofulous affections and intermittent fevers. It formed an ingredient in the once celebrated gout medicine called Portland Powder. *Veronica Chamædrys* is also known as the German Speedwell, and has been used as a substitute for tea.

IMPROVING THE SOIL BY BURNING (F. L.).—The site for the fire, or fires, should first be trenched to a depth of 2ft 9in, turning the top spit to the bottom of the trench, and taking out the two bottom spits for burning. This may be stiff work, but the work can be done by dipping the tool in a pail of water at every lift in order to make the next spadeful slip off the metal. On this site, or sites, the fire is to be commenced. Wood only fit for charring, or firewood, is the best material for burning, as it affords in burning a desirable quantity of potash and other mineral elements useful to plants. A little stack of wood should be formed 5ft in diameter at base, tapering cone-like to a height of 5ft, beginning with a few dry faggots in the middle, and finishing with stronger junks of wood towards the outside. All round this stack of wood a coating of clay is laid to the extent of about a foot in depth, packing it in lumps as taken out of the trench. When this is done set fire to the centre, and long ere the wood is all consumed, the clay will have caught fire and be burning freely. As soon as the first layer is nearly burned through, add another layer of clay all round, which in turn will soon be burned through also. Now break down the heap with a strong iron-handled hoe for the purpose of extending the bases of operation, and for adding more wood to quicken the fire. After the fire is thus set agoing, the wood necessarily laid horizontally over the burning heap, putting the strongest pieces of wood next the burning mass, and finishing off the layer with the smallest to prevent the clay from lying too closely to the wood and obstructing the draught. In the meantime open trenches at the extremities of the plot, taking out the clay and placing the top spit at the bottom as already described in making the site for the fire, forwarding the clay to the fire, there being the solid undisturbed surface to wheel it over, and the distance lessened as the fire becomes larger and requires more feeding. When again necessary to break down the fire for the purpose of extending the base and increasing its capacity for consuming the clay, another layer of wood is added, and then a layer of clay over the surface and all round the heap outside. After this is burned through, another layer of clay is packed on all over and round without any wood, and so on with two or three layers, till it becomes necessary to enlarge the base of the fire, by drawing it down from the top, then adding more wood, and from the great power which the fire attains it is necessary to have plenty of clay and hand power at hand to cover over the wood quickly, or it will be consumed without doing much good. And so this process is continued till the necessary quantity of clay is burned. When the fire is powerful layers of clay may be wheeled on to the thickness of 3ft and more at a time. As soon as the heap is sufficiently cool to be moved it is wheeled back over the surface of the ground whence taken, as the two under spits, and regularly spread, and the large lumps broken up. On this surface of burned material should be placed a good layer of compost or rubbish heap material, rotten leaves, road scrapings, dung, and any other decayed vegetable matter that can be obtained. Then open a trench at one end of the plot, and turn the whole over and mix as is done in a compost heap to the depth of the original clay, this being forked up as well as it will allow at the bottom of the trench. Remember, all this will be futile unless the ground has, previous to operations, been thoroughly drained. Soil for analysis should be sent to Dr. Voelcker, 22, Tudor Street, New Bridge Street, London, E.C., fee £3.

NAMES OF PLANTS.—Correspondents whose queries are unanswered in the present issue are respectfully requested to consult the following number. (M. F. E. C.).—1, *Cryptomeria elegantissima*; 2, *Sequoia gigantea*, the Wellingtonia; 3, *Taxodium distichum*, the Swamp Cypress; 4, *Cupressus Macnabiana*; 5, *Cytisus virgata*. (T. W.).—1, *Datura suaveolens*; 2, *Lantana nivea* variety; 3, not recognised in its present state; 4, *Passiflora racemosa*. (Nemo).—1, *Buddleia globosa*; 2, *Crataegus Crus-galli*.

Trade Catalogues Received.

- William Colchester and Co., Ipswich.—*Fertilisers*.
D. Guiheneuf, 24, Rue Albourg, Paris.—*Trade Offer of French Bulbs and Plants*.
M. Herb, Via Trivio 24-36, Naples.—*General Bulb Catalogue*.
W. Mauger and Sons, Wholesale Bulb Growers, Guernsey.—*Bulbs*.
Ant. Roozen and Son, Overveen, near Haarlem, Holland.—*Dutch and Cape Bulbs, autumn, 1904*.



The Yellow Peril.

How quick we are to take up any new phrase or catch word, and give it place and position in the language of the day. The English of 100 years hence will be more totally different from the English of to-day than ever was our speech in the days of the early Georges. We steal and pilfer from all nations, we are so cosmopolitan; we are far travelled and deeply read, and we are really more adaptable than our neighbours credit.

The yellow peril—the phrase is practically new, and some sharp farmer has with a pretty wit associated it with a great pest and nuisance. If only we had a few of the industrious, hard-working yellow men we should suggest the only remedy that we consider truly effectual, i.e., hand pulling. “Times is, times was,” and labour is not to be had for minor industries. We remember in the days of our youth the gangs of women and children who, by their united labour, soon rid the corn fields of the strong growing yellow flowered ketlocks, charlocks, or wild mustard. Once pulled up the danger for another season is removed. Should once a plant flower and seed (and the seed is very plentiful) the plague will recur sooner or later. The ketlock seed will lie dormant for a great length of time. Being of an oily nature it is self-protecting. We lately dug up some very old turf in an orchard, or rather where an orchard had once been, and to our astonishment we find we have as fine a crop of ketlock as heart could wish. How long the seed has been there we cannot say, nor have we any idea where, in the first instance, it came there. Ketlock is the greatest nuisance when it appears in a barley crop. Among swedes or turnips it disappears under the hoe; it adds to the bulk of the weeds; but, still, being a weed, is dug and effectually removed. Hoeing corn, even wheat, is not fashionable, and, of course, if seeds are sown among the barley, hoeing is not practicable. If a field be very badly infested with ketlock, it might be wise to let corn and weed grow together till the latter was in flower, and then cut the crop and make hay. It would be capital feed and an effectual remedy. But we cannot well spare our barley crop, and, therefore, we must seek to destroy the weeds without injury to the precious seed. Here science comes to our aid, and tells us our end may be gained by “spraying.” But spraying, like matrimony, must not be entered upon unadvisedly or lightly, for the cost is a consideration, and an expert is almost needed to properly mix the spray, and to suitably administer it. It is a very easy thing to get a solution too strong or too weak, to apply it on an unsuitable day, and to apply it when the weeds have attained to such growth as to make them difficult to kill.

Now as to the question of cost. According to an eminent authority a good up-to-date sprayer will cost £30. A cheaper kind of sprayer fitted to the body of a cart will cost from £7 to £9. The present price of sulphate of copper is 32s. per cwt., and 15lb at least will be necessary per acre. Also it is quite possible, and very probable, that a farmer, unless he be particularly cute, may be served with adulterated sulphate of copper, and thus the results obtained by the most careful spraying will be very disappointing. It has been pretty conclusively proved by repeated experiment that a solution of 5 per cent. strength, at the rate of 50galls per acre, will effectually kill the weed. The best time to apply is when the weed is young, just having come into the rough leaf. The day of application must be still and dull. Unfortunately, we cannot arrange the weather for the following days, but bright sunshine will do much to finish off any little bit of life left in the sprayed weed. A soaking rain immediately after the spraying may be looked upon rather in the nature of a calamity. Sometimes it will happen that new weeds will appear after the first are effectually killed, and some experts go so far as to say that two sprayings of solution of 3 per cent. strength given at the interval of a fortnight are of more ultimate value than one dressing of a 5 per cent. strength. There seems to be great reason in this. Happily, this spray mixture does not act adversely on the corn crop or the equally valuable young clover that is growing with and amongst it. It is easy to see the value of more light and air for the young plants which the removal of the weedy growth will allow, and also weeds do not subsist on nothing, but take more than their share of moisture, and the valuable manurial ingredients contained in the soil.

Professor Wrightson has a most practical suggestion to make anent this spraying business. It does not seem to come quite within the scope of the ordinary farmer, and he is disposed to think it would be better if there should be a body of

men set apart for the profession of spraying. We have gangs of sheep clippers, gangs of sheep dippers, hedging and draining experts, shepherds who salve sheep and dress for scab, and therefore why not sprayers who, equipped with all up-to-date apparatus, and with a knowledge of suitable spray mixture, who, on receipt of a post card, would come and do the job, and relieve the farmer of extra work just at a time when he is so busy that he does not know what to do first. Of course in some districts hops would receive attention. We believe the process as applied to hops is known as washing, but it is in reality the same thing. Just at this date we should be thankful for an expert to undertake the spraying of our Plum trees, which are covered with an unwholesome looking blight. Apple orchards, too, would profit by a suitable application. And then there is a great field for enterprise in our vast stretches of Potato land. We believe here that in the immediate future the spraying of the growing Potato crop will be considered quite as necessary as earthing up and hoeing. Possibly, too, the turnip fly might be treated to a mixture which would make his life a short one, if not a merry one.

Surely the composition of suitable dressings, their action on plant and insect life, might be a capital subject for technical classes during the coming winter. We give this hint for what it is worth. The increased yield of a field of barley or oats will pay for the cost of dressing, besides the feeling of satisfaction there must be in seeing a good even crop. That the Bordeaux mixture checks, if not stops, the ravages of the Potato disease has been proved beyond doubt, even the most doubting Thomas of a farm labourer can see that, and if the turnip crop could be saved in a like manner the gain would be immense. Of course there are seasons when the little turnip plants race away without fear or favour, but, again, on many soils it is almost as difficult of cultivation as a rare exotic. At the best it is an expensive crop, but we have found nothing yet to take its place in the economy of the farm. We know some people who cavil when we speak of the value of a good crop of swedes, but we still pin our faith to a good acreage—this, of course, especially in a sheep-breeding district, where the turnip crop makes the best possible preparation for a thumping barley yield, and that of the very best maltster's quality.

Work on the Home Farm.

The rain which so delighted us last week very soon ceased, and we have had such drying winds and hot sunshine since that its good effects have already disappeared. As we expected, it gave an excellent filip to the young swedes, and in them only can we now discern any visible benefit.

Clover and hay crops have been dwindling rather than increasing their bulk, and farmers are wisely cutting them down, as the weather seems so settled that as good a chance of getting some good fodder may not occur again. Wheat and early barley will soon be in ear, but the straw will be a foot too short unless rain comes before they are shot level.

As noted above, swedes have grown quickly, but are hardly ready to strike out. We like them to get a good size before they are thinned. We also make a point of skerrying very close up to the plants whilst yet there are plenty of them. To go as close after they have been singled would risk knocking many of them up.

We have finished drilling turnips, except a few which will succeed the vetches mown green. We are ploughing this vetch land, as it is cleared, but it will be some time before we have a breadth worth sowing. These late turnips do not often attain a large size, but they stand frost well, and are useful in the lambing season. There is always a chance, too, of selling them for bunching; therefore we sow a White Globe as being the most saleable for that purpose. Mangold hoeing and striking out the early Green Globes finds our hands plenty of occupation without any attention to the hay.

We have to-day seen some hay (June 21) stacked, only three clear days having elapsed since it was cut. It was only turned once, so has been very inexpensive of labour. It would be very handy to get ours so quickly, as the swede hoeing will so soon make great claims on our limited force of men.

Grass mowers have been in great request, as also have the machine makers who repair them, for farmers will not send their mowers to be got ready until the very last moment, with the result that so many come in at once that some perforce must wait. Those who have harvesters needing repair would do well to pack them off at once to the nearest machine shop.

Market-day Lectures.

The above gives a title to a brochure of abstracts of addresses to farmers, delivered in the County Technical Laboratories, Chelmsford, on Friday afternoons during the winter months, 1903-4. Some of the lectures deal with the following subjects:—Principles involved in the improvement of a herd, either for beef or milk; Exhaustion of land by dairying; Wheat growing in Kansas: a contrast; the quality of English wheat; and “Are cheap guanos worth buying at present prices?”

